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Student Retention Practices in Associate Degree, Entry-Level Dental Hygiene Programs

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Purpose. The main purpose of this study was to investigate student retention strategies and practices implemented in associate degree, entry-level dental hygiene programs. Included are student attrition issues, academic standards, re-entry policies, and clinical remediation strategies.

Methods. A survey consisting of forced choice and open-ended questions was mailed to 31 randomly selected associate degree, entry-level dental hygiene programs. Surveys were analyzed using descriptive statistics and frequency distributions. Open-ended questions were analyzed using the constant comparative qualitative method to identify recurring themes.

Results. There was an 80% (n=25) return response to the survey. The findings of this study determined that dental hygiene programs are graduating, on average, a higher percentage (83%) of students when compared to two-year, associate degree programs in general (46%). The primary reasons reported by respondents for student attrition included: academic difficulties (88%), dissatisfaction with career choice (76%), family/personal responsibilities (72%), and clinical skill difficulties (56%). A wide variety of retention strategies were reported. Those most often cited were academic remediation (92%), clinical skill development/remediation (84%), academic advising (84%), financial aid assistance (84%), and tutoring (80%). Participating programs also reported setting high academic and ethical standards. Specific criteria for student re-entry were discussed.

Conclusion. The findings of this study suggest that associate degree, entry-level dental hygiene programs are committed to student retention and make considerable efforts to help students succeed. Student retention efforts could be enhanced for those student groups identified as possibly being at high risk for attrition. The findings and recommendations in this investigation may assist associate degree, entry-level dental hygiene programs in their efforts to retain a higher percentage of students.

Keywords: Dental hygiene education, retention, attrition, academic standards, remediation

Introduction

In post-secondary education, the issue of student retention and degree or program completion has often been a concern among institutional leaders. Colleges and universities expend a significant amount of resources to identify and attract potential students, but if students who enroll do not complete their program, the institution's expenditures on these students become losses. This issue is of special concern in dental hygiene education. Dental hygiene programs are, traditionally,

limited enrollment programs with lockstep, sequential curriculums. If a student does not complete the program, it is generally very difficult to replace that student. Due to accreditation standards and clinical competency criteria, programs traditionally have low faculty to student ratios. Additionally, self-contained patient clinics have high budgetary expenditures.

Given these fiscal realities, it is imperative to maintain full enrollment at all times. The main purpose of this study was to describe retention strategies and practices implemented in associate degree, entry-level dental hygiene programs. Student attrition issues, academic standards, student re-entry policies, and clinical remediation strategies were also investigated. The results of this study would be helpful to dental hygiene education programs in their efforts to both identify potential issues that contribute to student attrition and to identify retention success strategies.

Review of the Literature

Although student retention and completion issues are a high priority in dental hygiene education programs, there is limited research and policy information available in the dental and allied dental literature. Literature on these topics in other general post-secondary education, on the other hand, is prolific. A major portion of completion and retention issues in such post-secondary literature focuses on the empirical research and conceptual models of Vincent Tinto.[1,2] Tinto's (1975) model suggests that persistence behaviors are largely determined by the student's integration into the social and academic systems of the college.[1] The more a student interacts with an institution, he found, the more likely the student will be committed to staying at the institution. In Tinto's 1987 work, he postulated that the educational institution or program must be committed to each student's success.[2] According to Tinto, institutional commitment comprises six main actions or principles that lead to successful student retention:

1. Institutions should ensure that new students enter with or have an opportunity to acquire the skills needed for academic success.

2. Institutions should reach out to make personal contact with students beyond the formal domains of academic life.

3. Institutions' retention actions should be systematic in character.

4. Institutions should start as early as possible in efforts to retain students.

5. The primary commitment of institutions should be to their students.

6. Education, not retention, should be the goal of institutions.[3]

Issues of student retention are sparsely reported in the dental literature. Although minority issues are not specifically the focus of this study, a few dental schools have reported minority retention strategies that may be of value to the review of retention practices in general. Chalkley utilized the six components of Tinto's (1987) model of institutional commitment to investigate minority student recruitment and retention efforts in dental schools. Responses were received from 93% of participating schools. It was determined that an average of only 38% of the 54 participating dental schools included in the investigation demonstrated institutional commitment strategies towards retention. Those strategies most frequently embraced were early efforts to retain students, personal contact with faculty beyond academic life, a commitment to students' education, and systematic retention actions. It was concluded that an increase in institutional commitment would increase the retention of minority students.[3]

In an effort to increase and maintain minority dental student enrollment, Sinkford, Harrison, and Valachovic identified policy strategies that enhanced student recruitment and retention. These included collaborative efforts with major dental organizations, curriculum changes, and sustained federal funding made possible through legislative incentives.[4] Additionally, Wadenya, Schwartz, Lopez, and Fonseca reported recruitment and retention strategies of underrepresented minority students at the University of Pennsylvania School of Dental Medicine. Major recruitment and retention efforts focused on leadership, financial support, institutional commitment, and the creation of an inclusive environment. Additionally, retention was encouraged through a mentorship program.[5]

Although Tinto's conceptual model of student persistence has demonstrated predictive validity and is widely accepted in institutions of higher education, the model is not widely supported in two-year, commuter colleges (non-residential), where students travel daily from home to school. Pascarella, Duby and Iverson developed a theoretical model for commuter colleges based on the reconceptualization of Tinto's model.[6] Institutions were grouped by type (four-year residential, four-year commuter, and two-year commuter) in order to investigate persistence behaviors in commuter colleges. They found that academic integration (variables measured by students' academic activities and college grade point average) is more influential than social integration in commuter institutions. Another variable is the intent to persist or to leave. Students at commuter colleges attend for a variety of reasons, and intention is a good predictor of persistence.[6]

Nippert investigated influences on educational degree attainment in two-year colleges.[7] She determined that many students attending two-year institutions are often older commuters who attend part-time. These students are environmentally pressed (stressed) with personal, family, and financial responsibilities while attending college. Thus, these students generally have less interaction in the college environment and much greater interaction with the non-collegiate or external environment. Additionally, students in two-year institutions are more likely to be first-generation college students and members of a minority group.[7] It has been shown that 55% of minority students in public higher education attend community colleges.[8] Additionally, it has been shown that, in general, only 46% of entering students in two-year colleges will persist over a two-year period to eventually obtain a degree.[7]

Astin found that, for all institutional types, learning, academic performance, and retention are positively associated with academic involvement, positive relationships with faculty, and involvement with student peer groups.[9] Outcomes are more negative if students are isolated from peers or removed from the campus physically by commuting or being employed off campus. He also found that majoring in a health-related field has positive effects on students' commitment to job-related skills and their chosen professions.[9] Additionally, Terenzi and Wright conducted a longitudinal, *ex post facto* study of 1,105 freshmen over a four-year period.[10] The results of their study determined that students' perception of academic success was influenced by the frequency and quality of student and faculty formal and informal contact in a variety of settings during the first two years of academic preparation.[10] In addition to contact with faculty for academic purposes, some examples of informal contact with students would be participation in student association activities, receptions, or opportunities to discuss coursework with professors outside of class.

Noel, Levitz, Saluri, and associates have identified attrition themes in which retention efforts can be focused.[11] These are especially reflective of two-year, associate degree institutions and the first and second year of baccalaureate programs. These include academic boredom, uncertainty about major and career goals, transition and adjustment difficulties, limited or unrealistic expectations of college, academic under-preparedness, incompatibility, and relevance.[11]

The purpose of this study was to investigate student retention strategies and practices implemented in associate degree, entry-level dental hygiene programs. The results of this study may give additional insights for student retention strategies in dental hygiene education programs by identifying potential issues that contribute to students at risk. Programs may also benefit from the data regarding academic standard policies, program re-entry policies, and clinical remediation strategies when designing or revising their own policies.

Methods and Materials

The population for this study consisted of a small convenience sample of 31 randomly selected associate degree, entry-level dental hygiene programs. Programs were identified from a 2000 list of 262 accredited entry-level dental hygiene education programs made available through the American Dental Hygienists' Association (ADHA).[12] A survey instrument was developed by the researcher to investigate the retention strategies of the 31 institutions. The survey instrument consisted of 15 forced-choice and open-ended questions. Sections regarding student attrition issues, program re-entry criteria, academic standards, retention strategies, and clinical remediation strategies were included. Anonymity and confidentiality of participants were protected by the use of a random code number assigned to participants for tracking purposes only.

The survey instrument was piloted by a non-participating associate degree, entry-level dental hygiene program. All recommendations for change were incorporated into the survey.

Following completion of the pilot study, surveys with a letter of introduction were mailed on September 29, 2001 to program directors of the 31 randomly selected, two-year, entry-level dental hygiene program programs. On October 21, those programs not responding were contacted by email with a reminder and a second survey as an attachment. Lastly, on November 8, an additional survey was mailed to all outstanding non-responding programs. By November 27, 2001, 80% (n=25) of the surveys were returned. Returned survey data were analyzed using descriptive statistics and frequency distributions. Open-ended question responses were analyzed using the constant comparative qualitative method to identify recurring themes. This method of analysis quantifies and interprets repetitive themes.

Results

The survey revealed that 92% (n=23) of the responding institutions were either community or junior colleges or technical colleges. An associate degree was awarded by 92% (n=23) of the programs, and a certificate by 8% (n=2). Twenty-one programs (84%) were two years in length, with 16% (n=4) requiring three years for completion. Most programs reported requiring prerequisite coursework. Twenty programs (80%) reported scheduling a summer program for a mean of seven weeks in length. The majority (94%, n=24) of programs admitted only one freshman class per academic year with an average of 23 students. Programs were asked to report the number of students who graduated over the last three years. A wide range (50% to 100%) of retention rates was reported, with a mean of 83% graduation rate reported (Table I).

Table I: Background Information

Institutional Type (N=25)		
Community/Junior College	80%	n=20
Technical College	12%	n = 3
Dental School	4%	n = 1
University or College	4%	n = 1
Type of Degree Granted (N=25)		
Associate degree	92%	n=23
Certificate	8%	n = 2
Length of Program in Academic Years (N=25)		
Two-year program*	84%	n=21
Three-year program	16%	n = 4
*many programs also require pre-requisites		
Summer Session Offered (N=25)		
Yes	80%	n=20
No	20%	n = 5
Weeks in Summer Session (N=20)		
Range	2 to 15 weeks	
Mean	7 weeks	
Median	8.5 weeks	
Mode	10 weeks	
Number of Freshman Students Admitted (N=25)		
Range	12 to 36	
Mean	23	
Median	24	
Mode	24	
Average Graduates Over a Three-Year Period (1999-2001) (N=24)		
(One program was new, with one graduating class)		
Range	50% to 100%	
Mean	83%	
Median	91%	

Student Attrition

From a list of prescribed forced choices, participants were asked to report all the situations that have influenced student attrition in their dental hygiene education programs. An opportunity to report additional attrition issues was also made available. Those situations most often reported were academic underachievement (88%, n=22), dissatisfaction with career choice (76%, n=19), family and personal responsibilities (72%, n=18), and clinical skills not developing (56%, n=14) (Table II).

Table II: Reasons for Student Attrition (N=25)

A.	Academic underachievement	88%	n=22
B.	Dissatisfaction with career choice	76%	n=19
C.	Family and personal responsibilities	72%	n=18
D.	Clinical skills not developing	56%	n=14
E.	Not adhering to departmental or college policies	36%	n = 9
F.	Financial difficulties	28%	n = 7
G.	Time restraints due to work commitments	16%	n = 4
H.	Cultural issues/conflicts	04%	n = 1
I.	Geographic relocation	04%	n = 1
J.	Climate of classroom or campus	0%	n= 0
K.	Dissatisfaction with program or school choice	0%	n= 0
L.	Other – Disability hindered skill development	04%	n = 1

Academic Standards Policy

In a forced-choice format, dental hygiene program directors were asked to report their academic standards policy regarding students' continued retention in their programs. All programs (100%) expected students to maintain a grade of 'C' or better in all dental hygiene courses. One program allowed a grade of 'D' in a non-dental hygiene course while still maintaining full academic status. Respondents were asked in an open-question format to describe what constituted probation in their program. Responses included: earning a grade of 'D' or below, not maintaining an acceptable grade point average (GPA), not maintaining a specific course average, and disciplinary or professional policy violations (Table III).

Table III: Retention Issues

Academic Standards

Must maintain a grade of 'C' or better in dental hygiene courses.	Yes=100%	n=25

Probation Criteria (open-format themes):

- A grade of 'D' or below
- Unacceptable GPA
- Unacceptable course average
- Discipline or professional policy violations

Re-entry Policies

Possible opportunity to re-enter the program if dismissed	Yes=100%	n=25
Opportunity to repeat course with unacceptable course grade	Yes=100%	n=25
Wait a full term to repeat course with unacceptable grade	Yes=92%	n=23

Conditions for re-entry (open-format themes):

- Reapplication and compliance with admission criteria
- Available space in the following class
- Evaluation and permission from administration or admissions committee
- Adherence to a specific contract or goals and objectives

Conditions for non-reentry to program (open-format themes):

- Not continuing to maintain acceptable GPA
- Continuing poor academic performance
- Ethical issues with patients, self, or peers
- Cheating and academic dishonesty

Re-entry Policies

Respondents were asked to respond to a forced-choice "yes or no" question that asked: "If a student is dismissed from your program due to academic or clinical underachievement, is that student allowed to re-enter the program?" All participants

(100%) reported that, in most instances, students would have an opportunity to re-enter the program. In an open-ended format, the conditions for re-entry were also revealed. Various readmission themes surfaced, including reapplication to the program with compliance to established admission criteria; readmission contingent upon available space in the following class; and consideration for readmission would require evaluation and permission from an administrator, counselor, or an academic committee. Many programs further developed specific guidelines, contracts, or goals and objectives that the student would need to accept and comply with upon re-admittance. In two additional "yes or no" forced-choice questions, all programs (100%) reported that, upon re-admittance, the student would be required to repeat any coursework that was not satisfactorily completed. Additionally, 92% (n=23) of the programs reported students would have to wait a full term to repeat the class(es) in question (Table III).

Participants were asked in an open-ended format to describe the circumstances in which a student would not be allowed to re-enter the dental hygiene program. In addition to not continuing to maintain a specific overall GPA or poor academic performance, denial for re-admittance included ethical violations, such as unsafe, neglectful, or unethical conduct related to patient care, self, faculty, and peers. Additionally, participants reported denial for cheating or academic dishonesty.

Retention Strategies

From a list of 26 possible choices, participants were asked to report all the strategies their dental hygiene program might use to strengthen student retention. An opportunity to report additional retention strategies was also made available. The respondents reported using numerous retention strategies, including academic remediation (96%, n=24), clinical skill development/remediation (84%, n=21), academic advising (84%, n=21), financial aid assistance (84%, n=21), and tutoring (80%, n=20). Those strategies least reported were learning anytime/anywhere technology (4%, n=1), part-time option available (12%, n=3), and distance education/access (16%, n=4) (Table IV).

Table IV. Retention Strategies Implemented (N=25)

A.	Academic remediation	96%.	n=24
B.	Clinical skill development/remediation	84%	n=21
C.	Academic Advising	84%	n=21
D.	Financial aid assistance	84%	n=21
E.	Tutoring	80%,	n=20
F.	Faculty professional development to enhance learning or management	76%	n=19
G.	Academic support Services	72%	n=18
H.	Preadmission counseling or program career info. session	72%	n=18
I.	Personal/psychological counseling	68%	n=17
J.	Early problem identification & goals developed	68%	n=17
K.	Prior dental experience or office observations	68%	n=17
L.	Disability services	64%	n=16
M.	Library and learning resources	64%	n=16
N.	Encourage or organized study groups	64%	n=16
O.	Availability of faculty, staff and space	56%	n=14
P.	Developmental services	44%,	n=11
Q.	Encourage family support of goal attainment	40%	n=10
R.	Mentoring program	32%	n = 8
S.	Peer networking	32%	n = 8
T.	Encourage involvement in program or campus activities	28%	n = 7
U.	Diversity training	24%	n = 6
V.	Required prerequisite dental hygiene introductory course	24%	n = 6
W.	Distance education/access	16%	n = 4
X.	Part-time program option available	12%	n = 3
Y.	Learning anytime/anywhere technology	04%	n = 1
Z.	Other - community service & volunteering	04%	n = 1

Clinical Remediation

This study also investigated ways in which dental hygiene programs implemented clinical skill development/remediation opportunities for students and how these efforts were funded in the curriculum. In an open-ended response format, most participants reported that clinical remediation was managed with individual, one-on-one instruction to students needing additional assistance with clinical skill development. These remediation instructions were usually conducted during open clinic times or in regularly scheduled clinics. Other responses included small group clinical remediation sessions in open or scheduled clinics, a separate clinical course for skill development, and an independent study for students needing psychomotor skill development.

Program respondents were also asked in an open format if faculty received additional compensation for providing remediation assistance to students. Not all participants thoroughly explained their programs' remuneration policy for student remediation. Of those responding, eight programs stated that faculty did not receive additional compensation. Two programs reported that tutors were engaged and students personally compensate them. For those programs offering a separate remediation course or independent study, students incurred tuition fees, and faculty were compensated according to institutional salary policy.

Discussion

There was an excellent response rate (80%) to this investigation, which helped validate the results of this study. The findings of this study suggest that associate degree, entry-level dental hygiene programs are graduating a higher percentage (83%) of students with a degree than the average two-year institution (46%). These results for dental hygiene education programs reflect a much higher completion rate than reported in the literature for two-year institutions in general.[7] Several possible reasons for this can be found in the literature. Dental hygiene students usually enter a program with a strong intention to succeed and with generally well-defined career goals.[9,10,11] Programs are intense, with numerous hours of close faculty and peer contact.[9,10] Many students attending dental hygiene programs have previous college experience and are familiar with college protocols.[11] Additionally, most dental hygiene programs apply selective admission criteria to prospective students, usually resulting in classes filled with high academic achievers.

The primary reasons reported for student attrition in this study included academic and clinical difficulties, family and personal responsibilities, as well as dissatisfaction with career choice. This study suggests that these student groups are at a greater risk for experiencing difficulties or not completing the program successfully. Although dental hygiene programs enjoy a greater completion rate than two-year institutions in general, there are still concerns regarding attrition due to academic and clinical underachievement. As the literature revealed, one reason for this disparity may be the effect of environmental stressors on the non-traditional student.[7] Many dental hygiene students in two-year institutions are older, with personal, family, and financial responsibilities in addition to their academic career goals. Some students may also have trouble adjusting to high academic expectations and may find themselves under-prepared for the scholastic rigors of the profession.[11] It is surprising to learn the high percentage (76%, n=19) of student attrition related to dissatisfaction with career choice. This area reflects uncertainty about career goals and unrealistic expectations.

Numerous strategies are employed by programs to assist students in their efforts to succeed. Those most often reported by respondents were academic and clinical remediation, academic advising, and financial aid. It appears that few programs participating in the survey use strategies for busy, stressed students, such as part-time options or technology that allows students to learn at their convenience.[7] Those programs implementing clinical remediation strategies reported primarily using one-on-one assistance during prescribed clinic sessions or in open clinics. Most faculty were not compensated additionally for their efforts. A significant portion of students' academic success hinges on acquiring competent clinical skills. The results of this portion of the study paralleled the research of Branson and Toevs, who investigated the remediation policies and procedures in 227 dental hygiene programs.[13] It was determined that the majority of programs engaged in one-on-one faculty remediation instruction, with most faculty not receiving additional financial compensation. Faculty

met regularly to discuss student clinical progress. These authors recommended that educators apply psychomotor skill acquisition theory to increase remediation effectiveness.[13]

The 31 dental hygiene programs participating in this study appeared to be committed to graduating students with well-developed entry-level competencies. In order to develop competent heath care providers, high academic standards were reported by respondents. All participating programs required students to maintain a grade of 'C' or better in all dental hygiene courses, and to repeat the course if not successful. When students earned an unsuccessful grade, they were placed on probation and usually had to wait a full academic year to repeat the course. In addition to not earning a successful class grade, students may be placed on probation for not maintaining an acceptable GPA or for violating discipline or professional policy. These high standards reflect the profession's expectations that entering dental hygienists enter the profession prepared to enhance and promote the total health of their patients. As with other health professions, this expectation is best achieved through the attainment of professional entry-level knowledge, skills, and competencies.[14,15]

It was further reported that students not completing the prescribed program would, in most instances, be allowed to re-enter the program if space was available. Specific procedures and guideline for re-entry were reported. Instances of student behavior that resulted in not allowing re-entry included continued poor academic performance, academic dishonesty, and unethical conduct. Warman and Weidman, and Westerman, Grandy, Lupo, and Tamisiea investigated attitudes toward cheating in the dental school environment.[19] Six factors influencing cheating were identified: stress, environment, intelligence, personality characteristics, definitions of cheating, and moral judgment. Justifications for cheating were rarely endorsed among dental students. Students in both studies agreed that cheating behaviors should be confronted and appropriate personal responsibility enforced.[16].[17] To be responsible means that one holds oneself accountable according to the institution's policies and standards.[18] Maintaining high standards and ethical behaviors are essential when preparing students to provide quality patient care. *The Code of Ethics for Dental Hygienists* is meant to influence dental hygienists throughout their careers, beginning with the student experience. This professional responsibility places patient welfare before personal gain.[19]

Recommendations

Since student retention is generally believed to be one of the best indicators of a program meeting its goal of student success, the literature on student retention offers several recommendations that may be considered by dental hygiene programs to strengthen their student retention efforts. In general, all faculty and staff, starting during the admissions process, should develop a climate of student retention. The first introduction of the student to the college program needs to be as personalized at possible. In addition to sharing information at orientation sessions, faculty are encouraged to give students personalized attention with appropriate interactions. It is recommended that faculty be involved in early student contacts, so as to lay a foundation for faculty-student integration.[2,7,20 21] This personalized approach needs to be extended into the formal and informal educational experience. It has been shown that the frequency and quality of student and faculty contact is very important for student success.[2 ,9,10]

Advising

As discussed earlier, Pascarella et al. found that students attending two-year, commuting institutions are better integrated into the program through their academic experiences rather than social contacts.[6] Dental hygiene programs should consider helping students to get started on the right path by anticipating and meeting their academic and adjustment needs as they enter.[2] Immediate and proactive strategies should be used to reach first-year students before they have an opportunity to experience feelings of failure, disappointment, and confusion.[13] The assignment of a faculty advisor or mentor to meet regularly with students to discuss their needs and concerns is highly recommended.[5,7,21] These regularly scheduled, two-way communications between students and an assigned faculty advisor should be started early in the students' academic experience and be ongoing throughout their professional preparation.

Students attending two-year, commuter dental hygiene programs can be stressed with personal, financial, and family responsibilities in addition to their academic demands.[7] Families of dental hygiene students are often unaware of the rigorous academic demands and long clinical hours required to develop competencies. An open dialogue with students' families in the form of activities such as an open house or "family day" can help families understand and encourage students to succeed. Additionally, students experiencing difficulty achieving their educational goals due to personal or family responsibilities might benefit from alternative curriculum strategies. Programs are encouraged to consider developing non-traditional teaching and learning opportunities such at part-time enrollment options, distance education access, and learning anytime/anywhere technology.

Students experiencing financial difficulties should be referred to the campus's financial aid office for personalized assistance and support. It is always considered important to advise students to evaluate their financial needs prior to enrollment in the program, thus helping to minimize any future financial problems. Most dental hygiene programs routinely include pre-admission financial aid information in their admission packet to prospective students.

One major reason frequently reported (76%) for attrition was "dissatisfaction with career choice." Dental hygiene programs may benefit from requiring or recommending that students have prior dental office experience or observations to familiarize themselves with the dental hygiene field. DeAngelis and Goral determined that dental assisting experience was positively correlated with initial dental hygiene clinical performance.[22] This suggests that experience does support academic performance and career satisfaction. Additionally, the inclusion of a required prerequisite dental hygiene introductory course for students to become more confident with their career choice could be advantageous. It is also recommended to implement early, high quality, and ongoing advising with caring faculty and staff to assist students with career uncertainty.[23]

Academic

Faculty need to create an inclusive environment for students, provide timely feedback about academic performance, and identify quickly those who are struggling academically.[21] If a student is experiencing academic difficulty, an immediate, individualized approach that is expeditiously implemented should be developed.[20] *Collegeways Retention Resources* has developed a retention formula that faculty may want to consider adopting to help students succeed academically: Retention = Early Identification + (Early + Intensive + Continuous) Intervention.[24] In addition to an immediate intervention plan for academic concerns, the institution should provide accessible, efficient, and effective support services.

Clinical

Psychomotor skill theory stipulates that the development of dental hygiene skill is facilitated when students know the criteria that define an acceptable performance and product, and when students and faculty can accurately evaluate students' efforts. It is recommended that dental hygiene programs have students self-evaluate the difference between one's desired and actual outcomes. Faculty should provide feedback to guide students in self-evaluation to facilitate psychomotor skills with examples of desired outcomes.[13,25] If a student requires remediation, the strategies used must meet the specific needs and weakness of the learner. In addition to the clinical remediation strategies identified in this study, additional non-traditional methods recommended include peer tutoring, videotaping, student as observer, interactive computer programs, and faculty serving as patients.[13] Regardless of the method employed, it is important for the student to use criteria and to accurately self-evaluate. It is also highly recommended that dental hygiene programs develop written policies on remediation that are precisely communicated to students.[25]

Maximum and lasting retention strategies also require a long-term systematic approach. Exit interviews should be conducted whenever possible to gain potentially valuable insight into the existence of problems that may be impeding student success. A systematic approach to track students from entry until completion of their educational goals will allow programs to identify students who may be experiencing difficulties and employ appropriate intervention strategies. Data collection should be timed to obtain information at different points during the course of a student's education.[7]

The reasons for student attrition can be complex, and it is recommended that additional research in this area be conducted to further explore attrition and retention issues in dental hygiene education. Additionally, the results of this study should be viewed with caution because the sample of participants was small and limited to associate degree, entry-level dental hygiene education programs. Conducting another study that includes a larger sample and four-year, bachelor degree entry-level programs could enhance the validity and reliability. These enhancements would make the results more predictive and generalizable to all dental hygiene programs. It would also be of interest to compare the retention practices and policies between associate and baccalaureate entry-level dental hygiene programs, since the populations in these programs may be different.

Conclusion

This study examined the retention practices and policies in 25 associate degree, entry-level, dental hygiene programs. Although this is a small study, this investigation paints a picture of associate degree, entry-level dental hygiene education programs that are primarily successful in educating, maintaining, and graduating students for careers in the dental hygiene profession. Outstanding efforts were reported to maintain high academic and ethical standards, and to assist students in reaching their educational goals. Further investigating student groups that are at a greater risk for experiencing difficulties or not successfully completing the dental hygiene program could enhance retention efforts. Closely evaluating the reported student attrition issues and correlating them with suggested retention strategies in this study might assist programs in identifying strategies to enhance student retention. Additionally, the findings and recommendations in this study may be helpful to all dental hygiene programs in their efforts to retain and graduate competent, entry-level health care providers.

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Notes

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