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Justin Robert Nance, RDH

Candidate

Department of Dental Medicine, Division of Dental Hygiene

Department

This thesis is approved, and it is acceptable in quality and form for publication:

Approved by the Thesis Committee:

Robin Gatlin, RDH, MS, Chairperson

Christine Nathe, RDH, MS

Christina Calleros, RDH, MS

**ADMISSION REQUIREMENTS AMONG DENTAL HYGIENE PROGRAMS:
KEY INDICATORS TO STUDENT SUCCESS**

BY

JUSTIN NANCE

**A.A.S., DENTAL HYGIENE, RHODES STATE COLLEGE, 2008
B.S., DENTAL HYGIENE, THE OHIO STATE UNIVERSITY, 2016**

THESIS

Submitted in Partial Fulfillment of the
Requirements for the Degree of

Masters of Science

Dental Hygiene

The University of New Mexico
Albuquerque, New Mexico

July 2024

DEDICATION

I want to dedicate this thesis to my children, Landon and Paityn. Your unwavering support has been my guiding light throughout this journey. You both inspire me to strive for personal and professional growth. You both mean the world to me. I love you more than you will ever know! Keep following your dreams!

To my mother, Sherri, your constant encouragement and belief in me fueled my determination to see this thesis through. Your never-ending infectious enthusiasm and positive encouragement have kept me motivated and focused, reminding me of the joy to persevere. Thank you for always believing in me and being my #1 cheerleader!

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A special thank you to my coworkers, Kacy, Angeline, and Jill, for your continued support throughout this journey. I am blessed to have friends like you!

Lastly, to my best friend Chad, your encouraging talks have been my lifeline. In those moments when everything felt overwhelming and I was ready to give up, your words of encouragement, your unwavering belief in me, and your ability to make me laugh when I needed it most have made all the difference. Thank you for being you. I could not have done it without you.

Admission Requirements among Dental Hygiene Programs: Key Indicators to Student Success.

by

Justin Nance

A.A.S., Dental Hygiene, Rhodes State College, 2008

B.S., Dental Hygiene, the Ohio State University, 2016

M.S., Dental Hygiene, University of New Mexico, 2024

ABSTRACT

This descriptive study evaluated both cognitive (academic) and non-cognitive (personal) factors considered in the admission process and their correlation with student retention rates in dental hygiene programs. The research examined admission criteria and student retention rates for students who matriculated in 2021 and 2022, aiming to develop more effective admission criteria that predict student success and retention. A survey consisting of 20 multiple-choice questions was distributed to 327 accredited dental hygiene program directors in order to gather data. The survey achieved a 16% response rate. The results of this study provide insights into how to develop more effective admission criteria that can better predict student success and retention in the program. Correlation analysis indicated that higher standardized test scores are linked to lower attrition. These findings provide preliminary insights that can influence future admission policies and practices in dental hygiene programs, ultimately leading to better outcomes for students and institutions.

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Chapter I: Introduction

Introduction

Student retention is a critical component of dental hygiene programs nationwide. Various studies have explored retention factors that lead to academic success among allied health programs. It is recommended that better-formulated admission criteria of academic and non-academic factors be utilized to predict academic success among students entering a program in an effort to maintain retention.

The program administrator of an accredited dental hygiene program must have the authority and responsibility necessary to fulfill program goals, including coordinating and evaluating admission criteria. Admission of students into a program should be based on specific written criteria, procedures, and policies designed to increase retention. Programs must establish a process to ensure students meet academic and professional success. Enrollment among programs is limited due to capacity limits; therefore, it is essential for a program to design written, non-discriminatory admission requirements to ensure students are selected who have the potential for successfully completing the program.¹ The aim of this study is to identify the key indicators of student success in a dental hygiene program by determining the admission criteria that should be considered.

Statement of the Problem

What admission criteria are utilized among dental hygiene programs as the best predictors for students' academic success and retention?

Significance of the Problem

Admission requirements can predict students' academic performance, help decrease attrition, and lead to completing coursework and obtaining licensure. The admission process aims to select the most suitable candidates to ensure academic success within an institutional program. The Commission on Dental Accreditation (CODA) is an accrediting agency that maintains and improves dental hygiene programs' quality. CODA requires dental hygiene programs to keep records of attrition and retention and hold programs accountable for lack of student success.

After enrollment, students selected for admission to a dental hygiene program fully intend to advance throughout their coursework and become licensed healthcare providers. Admission requirements and processes developed and utilized by dental hygiene programs should be established to retain all students to graduation and professional licensure. With limited enrollment capacity among dental hygiene programs, requirements should be considered as the key indicator for selecting candidates with the most significant potential for completing the curriculum. In programs that utilize more selective criteria, the potential for a student's academic success is much greater than in those with less requirements.

While carefully selective admissions criteria increase the chances of student success and program completion, less selective admission requirements potentially increase the pool of applicants available to the program. With increased qualified candidates, dental hygiene programs encounter more applicants who could potentially meet the programs admissions allotments. While this increase may be desirable, it could also result in a number of qualified candidates that overly exceed the admission capacity,

which results in programs with lengthy admission waitlists, sometimes over two to three years. Dental hygiene programs must ensure that any candidates who are placed on a waitlist are predicted to succeed within their program. Many programs face concerns when a non-selective admission process is utilized; at risk candidates are placed on the waitlist, taking a spot in the program away from someone more qualified.

Program administrators and educators need to ensure that their program's admission requirements are aligned with student success. Identifying key indicators that can be used to select or slate potential candidates should be considered. Students entering a dental hygiene program need to have the ability to be academically successful throughout their coursework and pass the National Board Dental Hygiene Examination (NBDHE) before they can become licensed professionals.

More research is needed to identify the ideal admission criteria. If dental hygiene programs want to retain more students and increase their students' academic success, their admission processes and requirements should be established around research that supports student success.

Operational Definitions

Dental Hygiene Programs- An entry-level, CODA accredited program that awards an associate or baccalaureate degree in dental hygiene

Retention- Students moving from first semester start through graduation

Attrition- The number of students who fail, drop out, withdraw, or do not continue their academic careers

Persistence- Student's ability to continue to the next term

Commission on Dental Accreditation (CODA) - accredits dental and dental-related education programs, including advanced dental education programs and allied dental education programs in the United States

Chapter II: Review of Literature

Introduction

This literature review aims to review literature which focuses on the variety of admission criteria used by program administrators or program section committees in their admission processes to ensure students' success. General information will be examined on the cognitive and non-cognitive admission measures used in the selection process by dental hygiene programs. Articles have been searched through the PubMed database, the American Dental Hygienists' Association website, and the Commission on Dental Accreditation website using keywords like “dental hygiene admission criteria,” “dental hygiene admission process,” “dental hygiene retention,” and “cognitive and non-cognitive admission criteria.”

Retention in Higher Education

Program administrators and admission committees are tasked with determining which admission criteria will likely indicate a student's academic success and increase retention once admitted into the dental hygiene program. Student retention in higher education is typically defined as the continued enrollment of a student from the first year to the second year.² Student attrition rates and degree or program completion have always been critical components in higher education for many decades and, according to research, have become one of the main focuses across colleges and universities nationwide. As students fail to persist throughout their academic coursework, there are many impacts that academic institutions face. Student persistence is prominent in institutional financial planning, as students' tuition and fees drive institutional revenue. The higher the retention rate at an institution, the more students continue to enroll, paying

tuition and fees, generating income, and leading to institutional financial success. When student retention is low, an institution's reputation is also impacted. Colleges and universities spend a significant amount of resources to identify and attract potential students, and when retention decreases, these efforts become a loss.³ Selecting prospective students who will ultimately graduate and are successful on licensure examinations is crucial to the success and longevity of dental hygiene programs.

If a student does not complete the program, it is ordinarily difficult for a dental hygiene program to replace that student. The inability to replace a student creates a void that cannot be filled until the program completes another admission cycle, in most cases a year later. With many dental hygiene programs having self-contained patient clinics, programs have high budgetary expenses relying greatly on student persistence to ensure financial attainment. While student attrition is a primary concern for institutions nationwide, there is still the need for more research to determine what institutions and dental hygiene programs can do to improve retention.

Dental hygiene programs are tasked with recording retention among their programs. According to The Commission on Dental Accreditation (CODA), dental hygiene programs must be established to ensure students meet the academic, professional, and clinical criteria.¹ Programs must maintain records of attrition and retention related to academic performance.

Cognitive Predictors

Traditionally, cognitive variables such as grade point average (GPA), course grades, and scores on standardized tests have predominantly been the most used admission standard among dental hygiene programs. Researchers have found these

variables have been utilized in the selection process among dental hygiene programs for many decades and remain helpful in admission selection. However, investigations on cognitive variables have produced mixed results in determining the correlation of cognitive predictors to a student's academic success. Strong intellectual abilities and cognitive components are often cited as fundamental elements for successful dental hygienists.^{1,4,5} While cognitive predictors may be significant for admission selection for dental hygiene programs, they may not inevitably forecast success. For dental hygiene students to be successful, they need to have the ability to succeed in didactic coursework along with clinical competence. Dental hygiene students need to have the ability to think critically and the ability to interact with patients to provide quality care effectively.

Standardized Tests

Standardized test scores have been identified as a primary admission criterion among dental hygiene programs. Several researchers offer evidence that supports the role of cognitive ability as an effective predictor of college performance among students.⁶ For instance, it has been reported that cognitive predictors such as standardized testing and high school GPAs that were widely used as admission criteria had increased students' persistence compared to those that did not.^{7,8} Although standardized test scores continue to be used in the selection criteria, there is an intensifying debate regarding their adequacy in predicting a student's overall academic performance.⁹

According to The American Dental Association's (ADA) 2020-2021 Survey of Dental Hygiene Education Programs, 25% of accredited dental hygiene programs utilized the American College Testing (ACT), and 16% report using Scholastic Aptitude Test (SAT) composite and subtest scores for admission selection. Forty-three percent reported

using "other" test scores as criteria in their admission process.¹⁰ Dental hygiene programs that have reported having a higher mean ACT score are considered to have a more selective admission criterion.⁵

Aside from the ACT and SAT, dental hygiene programs have used other forms of standardized testing. A formally standardized test used for admissions to dental hygiene programs was called the Dental Hygiene Aptitude Test (DHAT).⁷ The DHAT, originated in 1956, can be used as a pre-admission examination for dental hygiene. This exam is intended to measure science knowledge, verbal knowledge, and capability of reading and comprehending scientific information. The DHAT has been shown to be a positive predictor for the National Board Dental Hygiene Examination (NBDHE).¹¹ The purpose of the DHAT for admissions is similar to that of the Dental Admission Test (DAT) utilized by dental schools. However, the DHAT is not widely used, and can be accessed by anyone interested in pursuing a career in dental hygiene.

Grade Point Average (GPA)

Many accredited dental hygiene programs consider previous grades from high school and even college coursework in their admissions selection. Assessing previous academic performance provides insight into predicting student success and increasing retention rates.^{5,7,12,13} Grade point average has been investigated in several studies and has continued to be identified by dental hygiene programs as a critical factor in admission selection.

According to The American Dental Association's (ADA) 2020-2021 Survey of Dental Hygiene Education Programs, 19% of accredited dental hygiene programs report

using an applicant's overall high school GPA in their admission criteria. Sixteen percent of dental hygiene programs utilize high school science GPAs, and 7% report using non-science high school GPAs as part of their admission criteria.¹⁰ However, in the review completed by Williford, student performance in high school courses has yet to be studied sufficiently to determine its validity and reliability in predicting a student's academic success.⁵ Performance in high school courses is not uniform from school to school and considered problematic in predicting an applicant's success.¹⁴ Grades can be inflated in high school, and different grading scales and grading standards are used from school to school, making it hard for programs to utilize high school GPA alone to predict an applicant's academic success.¹⁵

College grades are shown to be utilized more often among dental hygiene programs than those high school grades. Seventy percent of the accredited dental hygiene programs reported assessing an applicant's overall college GPA when considering admission into their program. Seventy-three percent report assessing college science GPA and 47% assess non-science GPA, while 27% reported "other" for assessment in an applicant's college grades.¹⁰ The utilization of college GPA as an admission criterion has been determined to be more accurate than that of high school GPA.¹⁴

The study of high school and college GPA as a predictor in dental hygiene programs often appears in literature. Dental hygiene research has related conflicting findings on whether or not GPA is a positive predictor to use in predicting academic success among applicants. GPA along with other cognitive and non-cognitive factors, are suggested to be utilized in admission selection.

Non-cognitive Predictors

Non-cognitive factors have been considered for program admissions, especially to increase diversity. Factors such as a student's family background, already existing skills, and previous education are non-cognitive factors that need to be considered for student retention.¹⁶ In an article titled Effects of Radiography Program Admission Practices on Student Retention, Kudlas explains that in order to for a student to be successful, they must be intergraded academically and socially into an institution or program.¹⁶ Pre-admission interviews, letters of recommendation, and previous dental experience are all non-cognitive predictors reported to be used by dental hygiene programs in their admission selection.

Pre-admission interviews were reported to be used by 35% of accredited dental hygiene programs within the United States. In the pre-admission interview process, programs can ask applicants questions ranging from family background, existing knowledge, and critical thinking questions.⁷ Admission committees will score the applicants using a rubric during the interview process. The computed scores from the interview are then used as an assessment and utilized in the selection process.

Letters of recommendation have been reported as admission criteria by 22% of the accredited dental hygiene programs. The literature review found that no dental hygiene literature is available to validate the use of a letter of recommendation in the admission process.

Summary

Dental hygiene programs are faced with the ongoing challenge of selecting and admitting the most qualified students to fill the limited number of openings each year.

With the current shortage of dental hygienists in the United States, programs need to select candidates who will complete the program and succeed in graduation dental hygiene programs with a more selective or competitive process for admission are suggested to have a higher retention rate than programs that do not use a basic competitive process or criteria. Identifying reliable admission criteria, ensuring students' success through the first year as well as their persistence through graduation, is also vital to the existence of dental hygiene programs. However, it is important to remember that dental hygiene programs admission not only select candidates who will most likely do well with their academic coursework but to select a diverse population of students that will rise to competent practitioners who can best serve the dental profession and its patients.

Chapter III: Methods and Materials

Introduction

This descriptive study evaluated both cognitive (academic) and non-cognitive (personal) factors considered in the admission process and their correlation with student retention rates in dental hygiene programs. The research investigated cognitive and non-cognitive admission criteria and student retention rates for students who matriculated in 2021 and 2022. The results of this study provide insights into how to develop more effective admission criteria that can better predict student success and retention in the program. The results of the study could influence future admission policies and practices in dental hygiene programs, ultimately leading to better outcomes for both students and institutions.

Sample Selection

The survey was sent to a convenience sample of dental hygiene program directors who hold the responsibility of managing the admission selection process. To ensure a representative sample, the number of invited participants was determined based on the total number of accredited dental hygiene programs in the United States. The identification of these programs was carried out using the 2020-21 American Dental Association Commission on Dental Accreditation annual survey. Through this approach, a total of 327 accredited undergraduate dental hygiene programs were identified and considered for this study. Participation in this study was completely voluntary.

Research Design

This descriptive study utilized an electronic survey methodology with a convenience sample to investigate which admission criteria used among dental hygiene programs are the best predictors of students' academic success and retention. A survey of 20 multiple-choice questions (Appendix C) was developed to investigate the admission requirements utilized in admission selection among dental hygiene programs nationwide and their relationship to student retention. Specifically, the survey was developed to identify the most frequently used cognitive (academic) and non-cognitive (personal) admission criteria and to examine their impact on student retention rates. The survey also explored the prioritization of cognitive and non-cognitive admission criteria, as well as factors contributing to student attrition and its impacts on dental hygiene programs.

Data Collection

Upon approval from the University of New Mexico Human Research Protection Office (HRPO)(Appendix A), an initial survey was disseminated via email to all accredited dental hygiene program directors nationwide. The email contained a Recruitment Letter (Appendix B) with a link to the survey that they could complete at their convenience. The questions of the survey consisted of 20 multiple-choice questions (Appendix C) that took approximately 5-10 minutes to complete. This survey collected information on demographics, admission requirements, and student retention rates from directors of dental hygiene programs for the graduating classes of 2021 and 2022. The survey was open for four weeks, with a reminder email being sent two weeks following the initial recruitment email for additional recruitment efforts. The survey did not collect

personal information and the responses were anonymous with only the research team having access to the survey data, ensuring its confidentiality.

Data Analysis

The returned survey data was exported from Microsoft Forms to an excel spreadsheet and analyzed using descriptive statistics and frequency distribution techniques to summarize and interpret findings. The analysis included the use of descriptive statistics and frequency distributions to summarize the returned data. Furthermore, Spearman rank-order correlation coefficient was utilized to compare admission criteria between the two classes based on academic progress. The results were used to determine whether there were significant differences in admission criteria between two groups of students who matriculated.

Chapter IV: Results, Discussion and Conclusion

Summary of Results

The online survey targeting dental hygiene program directors responsible of managing the admission selection for all entry-level dental hygiene programs accredited by the Commission on Dental Accreditation (CODA) was launched on March 28, 2024. A second email was sent two weeks later to remind participants to voluntarily complete the survey. It remained accessible for four weeks, concluding on April 25, 2024. Out of 327 distributed surveys, a total of 52 (n=52) responses were received resulting in a response rate of 16%. The survey was conducted using Microsoft Forms. To be included in the data analysis, question one, asked respondents to identify if they had graduating classes for the years 2021 and 2022. One program was excluded from this analysis because they reported they did not have a graduating class for the 2021 and 2022 year. Therefore, the overall response rate used for analysis was n=51. (Figure 1)

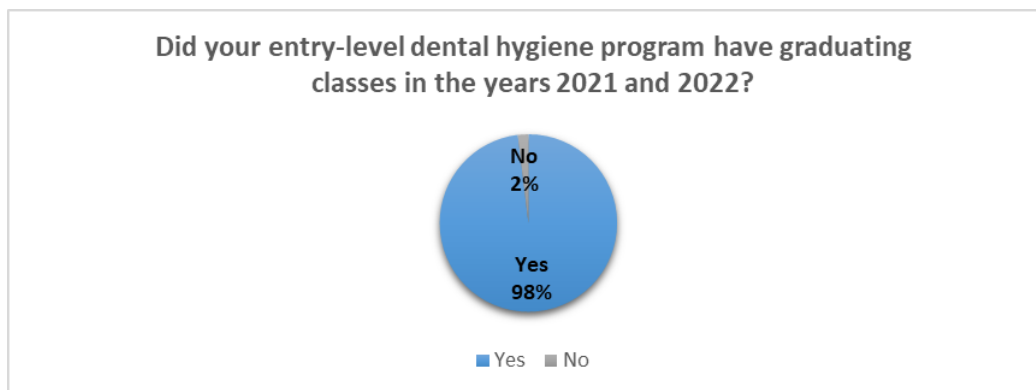


Figure 1. Entry-level dental hygiene program have graduating classes in the years 2021 and 2022.

The survey inquired about the types of entry-level degrees offered by these institutions. Question two asked the programs “What entry-level dental hygiene program does your college/university offer?” The majority (73%) reported offering associate degrees as their entry-level qualification, while 27% offer bachelor's degrees, and no programs offered certificates. (Figure 2)

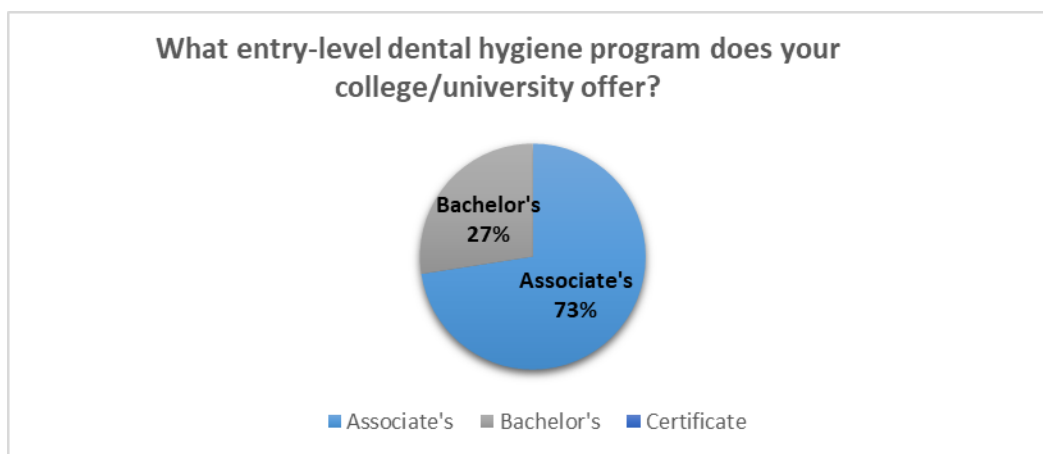


Figure 2. Entry-level dental hygiene programs offered upon program completion

Question three of the survey asked, “Does your entry-level dental hygiene program use Dental Hygiene Centralized Application Services (DHCAS) in your admission selection process?” The number of dental hygiene programs that responded no was 88% (n=45) and yes was 12% (n=6). (Figure 3)

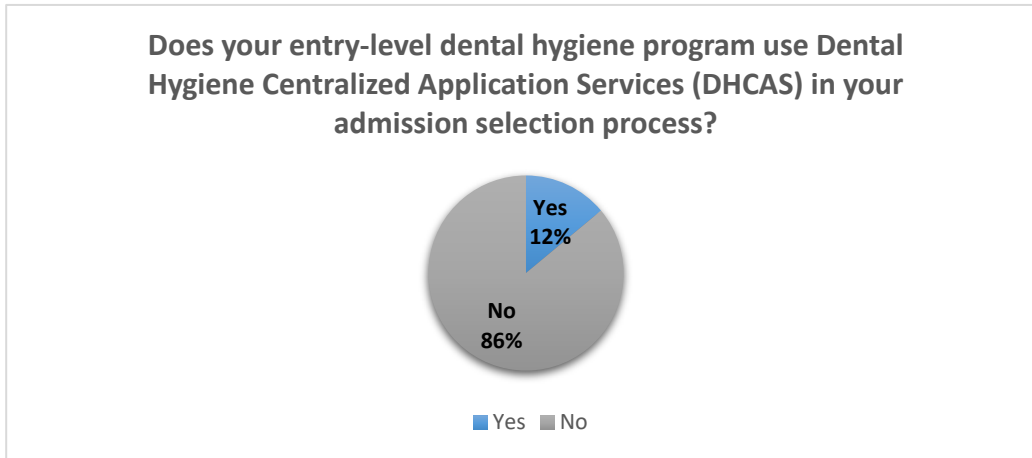


Figure 3: Entry-level programs utilizing Dental Hygiene Centralized Application Services (DHCAS)

Question four of the survey was aimed at identifying whether entry-level dental hygiene programs considered high school GPA in their admission selection process. Participants were asked, “Does your entry-level dental hygiene program consider a high school GPA as part of its admission criterion?” The number of dental hygiene programs that responded yes included 16% (n=8), while 84% (n=43) responded with no. (Figure 4)

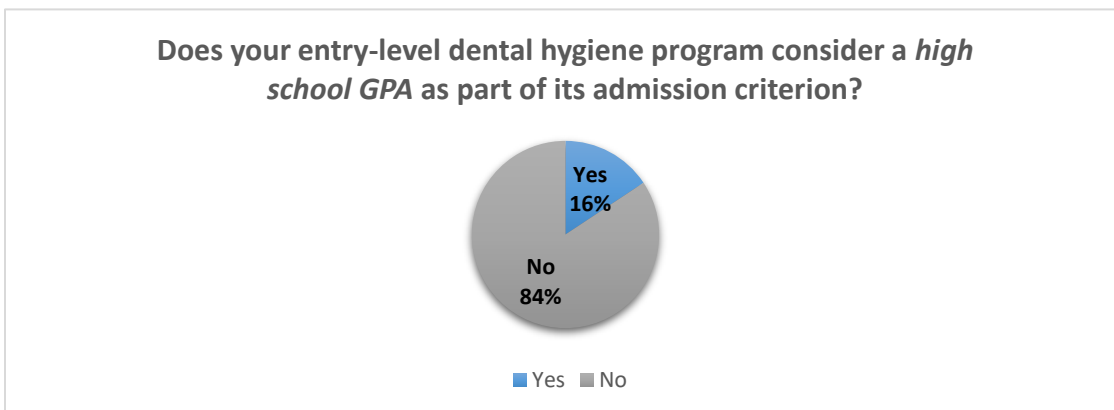


Figure 4: Entry-level programs considering high school GPA

Question five was a continuum to the previous question and asked participants to specify which high school GPA was considered. Question five read, “If yes, which high school GPA(s) are considered? (Select all that apply)”. Of the programs that answered yes (n=8), 88% (n=7) indicated they consider overall high school GPA, and 50% (=4) considering high school science GPA. No participants indicated using non-science GPA’s. (Figure 5)

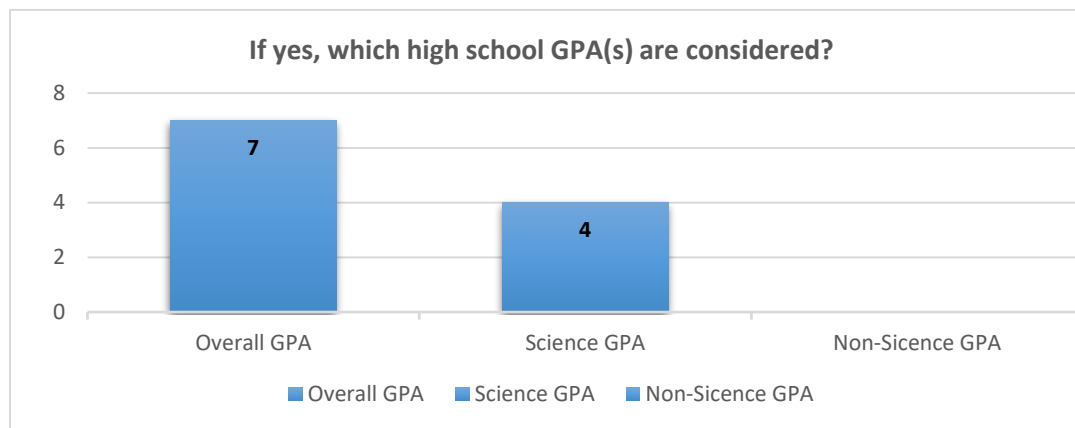


Figure 5: Entry-level programs utilizing which high school GPA

Question six aimed to determine which entry-level programs included college GPA in their admission selection process. It specifically asked, "Does your entry-level dental hygiene program consider college GPA as part of its admission criteria?" Ninety-two percent (n=47) reported that they do consider college GPA, while 8% (n=4) indicated that they do not. (Figure 6)

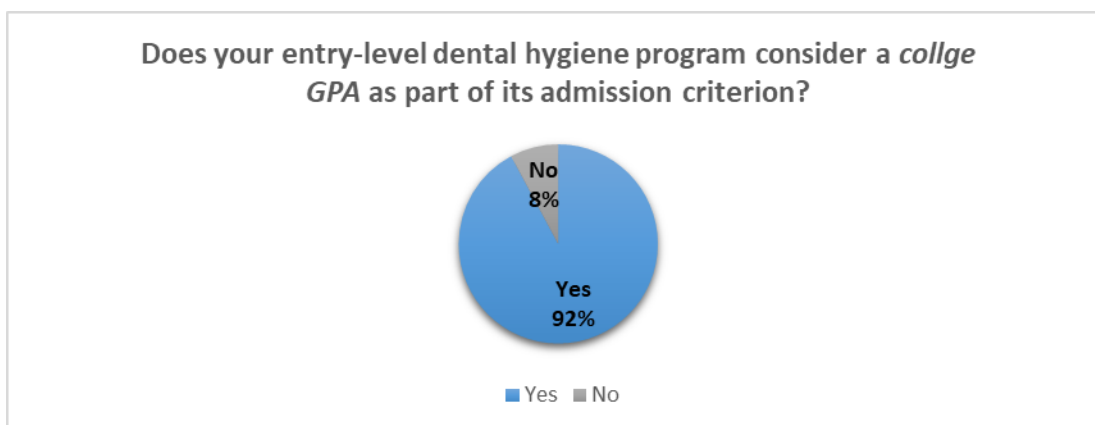


Figure 6: Entry-level programs considering college GPA

Question seven followed up on the previous question, asking participants to specify which college GPAs were considered. It asked, "If yes, which college GPAs are considered?" Of the programs that answered yes (n=47), 83% (n=39) indicated they consider overall college GPA, and 64% (n=30) consider college science GPA, and 11% (n=5) indicated using non-science GPAs. (Figure 7)

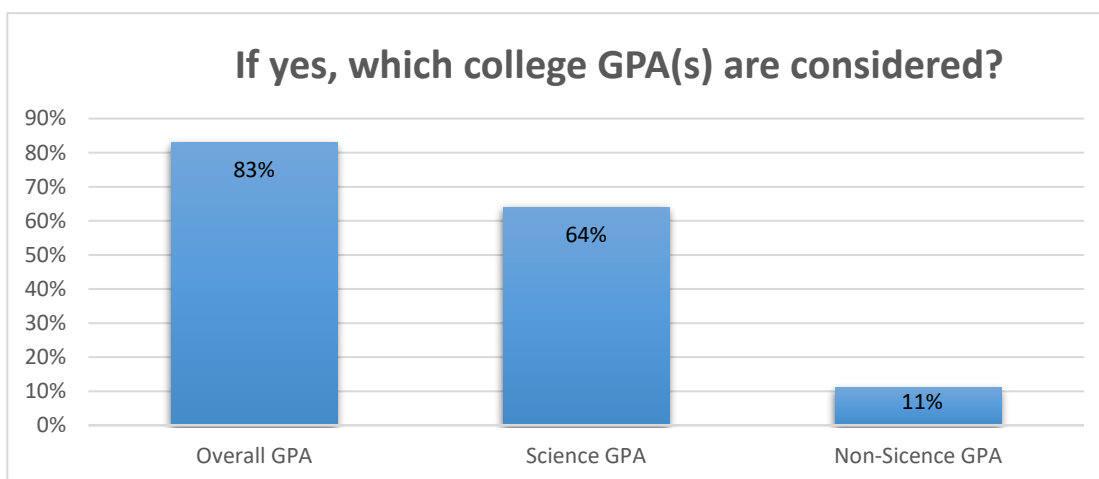


Figure 7: Entry-level programs utilizing which high school GPA

Question eight addressed the use of standardized test scores as an admission criterion in entry-level dental hygiene programs. It inquired, "Does your entry-level dental hygiene program utilize standardized test scores as an admission criterion?" Among the respondents, 49% (n=25) confirmed that their programs do utilize standardized test scores, whereas 51% (n=26) indicated that they do not incorporate standardized test scores into their admission criteria. (Figure 8)

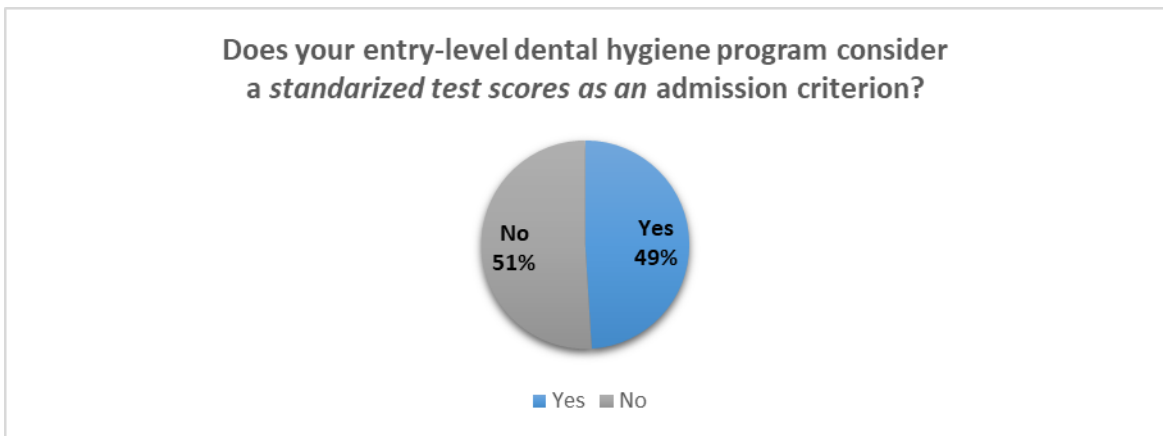


Figure 8: Entry-level programs considering standardized test scores

Question nine further explored the use of standardized tests among programs that reported using them for admission selection. It asked, "If yes, which standardized tests are utilized for admission selection? (Select all that apply)" Among the programs that use standardized test scores (n=25), 36% (n=9) utilize the ACT, 24% (n=6) use the SAT, 4% (n=1) use the Dental Hygiene Aptitude Test (DHAT), and 64% (n=16) reported using other types of standardized tests. Those who responded using other standardized tests included 8 programs (n=8) who used the Test of Essential Academic Skills (TEAS), 2

(n=2) who used the Health Education Systems, Inc. Exam (HESI), and 1 program (n=1) who reported using the Wonderlic test. (Figure 9)

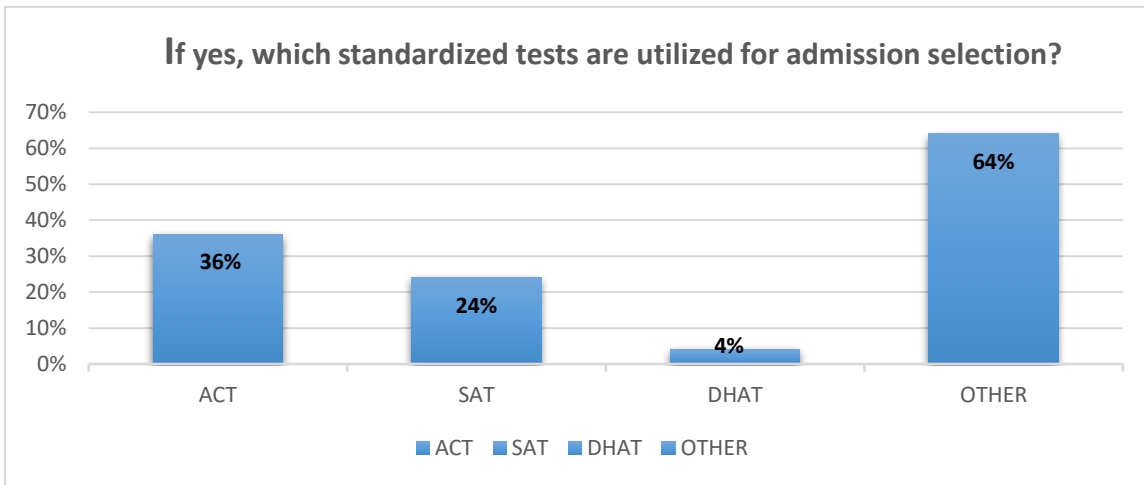


Figure 9: Entry-level programs utilizing which standardized test scores

Question 10 addressed the use of pre-admission interviews as part of the selection process in entry-level dental hygiene programs. It asked, "Does your program utilize pre-admission interviews as part of the selection process?" Among the respondents (n=49), 37% (n=18) confirmed that their programs do utilize pre-admission interviews, while 63% (n=31) indicated that they do not include pre-admission interviews in their selection process. Two participants did not provide an answer to this question. (Figure 10)

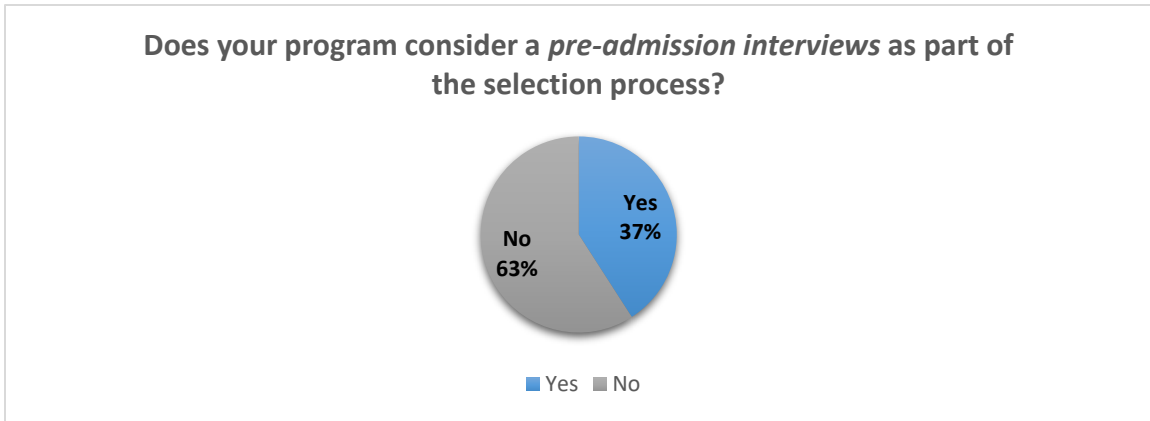


Figure 10: Entry-level programs considering pre-admission interviews

Question 11 explored the consideration of letters of recommendation as part of the admission process in entry-level dental hygiene programs. It asked, "Does your program consider letters of recommendation as part of the admission process?" Among the respondents (n=51), 24% (n=12) confirmed that their programs do consider letters of recommendation, while 76% (n=39) indicated that they do not include letters of recommendation in their admission process (Figure 11)

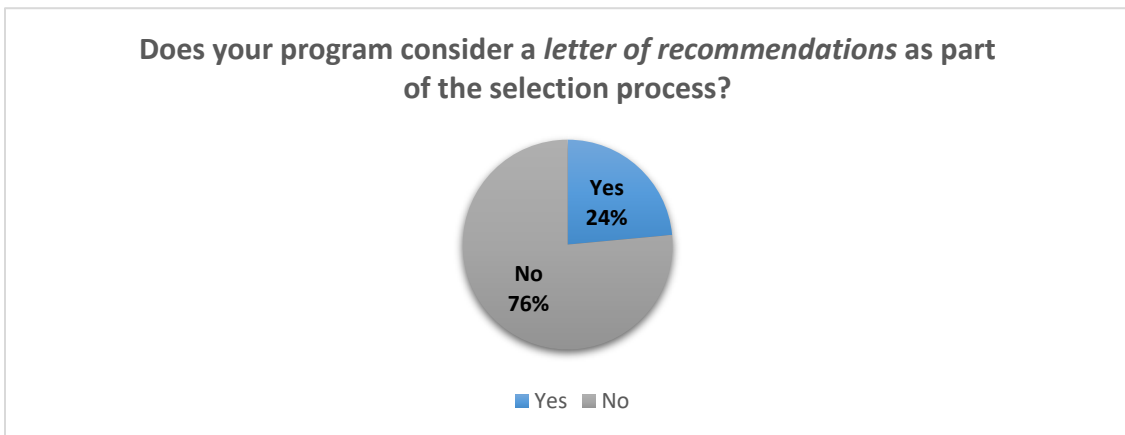


Figure 11: Entry-level programs considering letters of recommendation

Question 12 investigated the use of personal statements as part of the admission process in entry-level dental hygiene programs. It questioned, "Does your program consider personal statements as part of the admission process?" Among the respondents (n=51), 39% (n=20) affirmed that their programs do consider personal statements, while 61% (n=31) indicated that they do not incorporate personal statements into their admission process. (Figure 12)

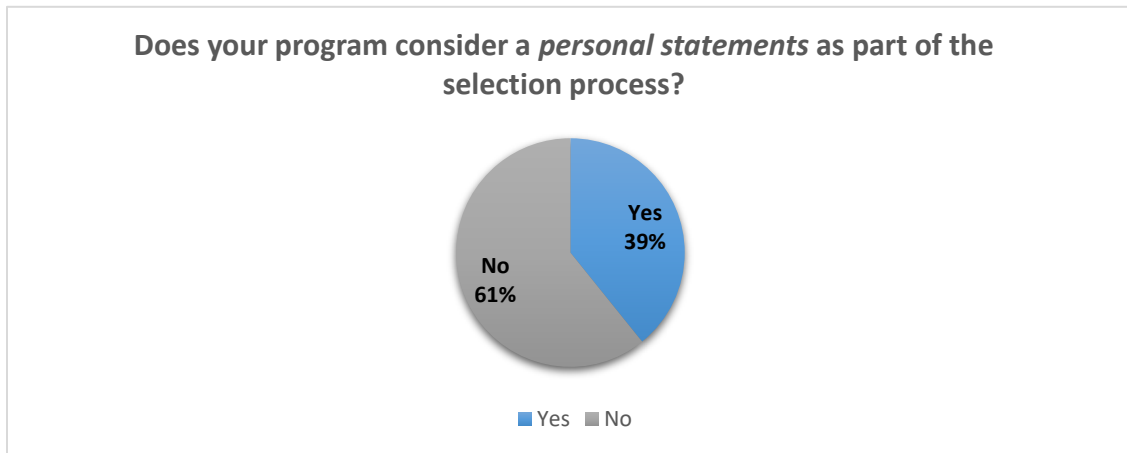


Figure 12: Entry-level programs considering personal statements

Question 13 explored the consideration of previous dental experience in the admission selection process for entry-level dental hygiene programs. It asked, "Does your entry-level dental hygiene program consider previous dental experience in the admission selection?" Among the respondents (n=51), 41% (n=21) confirmed that their programs do consider previous dental experience, while 59% (n=30) indicated that they do not include previous dental experience as a criterion in their admission selection. (Figure 13)

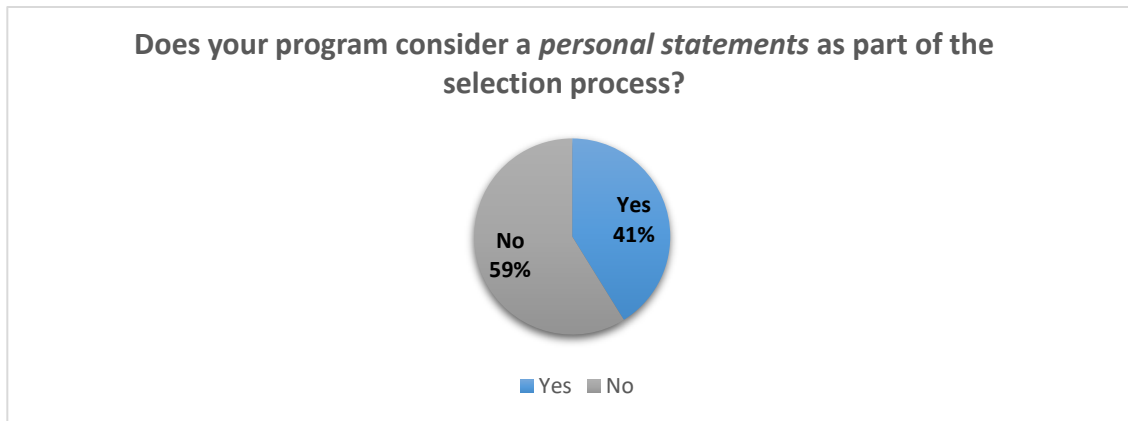


Figure 13: Entry-level programs considering previous dental experience

Question 14 examined the prioritization of various cognitive and non-cognitive admission criteria in entry-level dental hygiene programs. It asked, "Among those who use high school GPA, college GPA, standardized test scores, letters of recommendation, preadmission interviews, personal statements, and previous dental experience, how are these criteria prioritized?" Among the 50 respondents (n=50), 12% considered high school GPA a high priority, while 8% found it neutral and 8% low priority; 72% deemed it not applicable. In contrast, among programs utilizing college GPA, 76% ranked it highest, 12% as moderate, 4% neutral, 2% low priority, and 6% not applicable. For standardized test scores, 22% were high priority, 18% moderate, 6% neutral, 10% low priority, and 44% not applicable. None prioritized letters of recommendation highly, but 16% considered them moderate, 8% neutral, 4% low priority, and 72% not applicable. Regarding preadmission interviews, 12% were high priority, 20% moderate, 4% neutral, 2% low priority, and 62% not applicable. Personal statements were high priority for 2%, moderate for 20.4%, neutral for 14.3%, low priority for 6.1%, and 57.1% not applicable.

Previous dental experience was high priority for 4%, moderate for 22%, neutral for 14%, low priority for 12%, and 48% not applicable. (Figure 14)

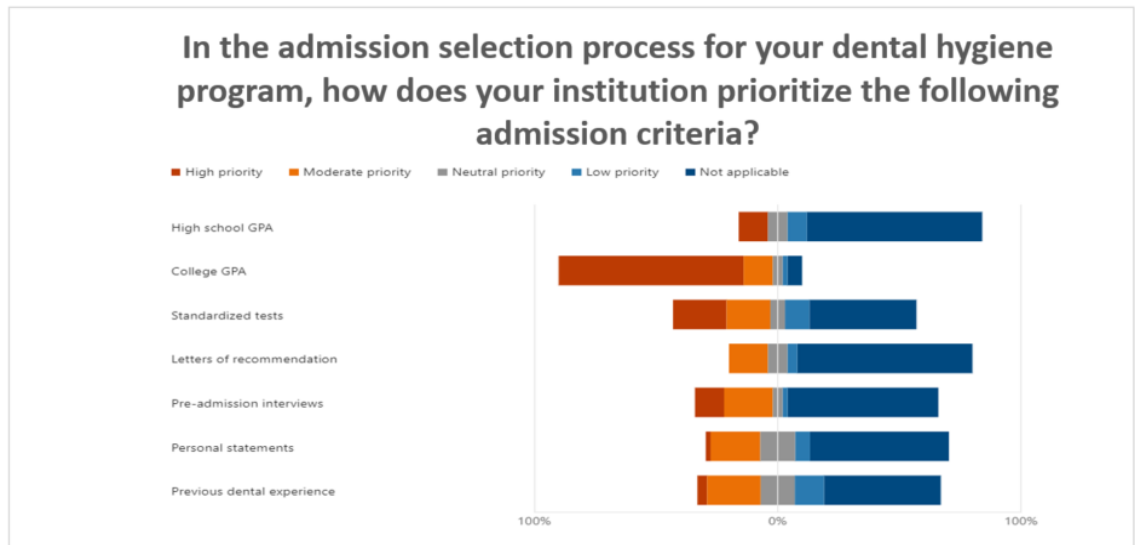


Figure 14: Prioritization of cognitive and non-cognitive admission criteria

Question 15 was aimed at determining the attrition rates for the dental hygiene program for the class of 2021 among participating institutions (n=50). The results indicate that 31 programs (n=31) reported an attrition rate between 0% and 5%. Ten programs (n=10) reported a higher attrition rate of 6% to 10%, while three programs (n=3) reported rates of 11% to 15%. Additionally, five programs (n=5) indicated a rate of 16% to 20%, and one program (n=1) indicated 21% or higher. One participant did not provide an answer to this question (n=1). (Figure 15)

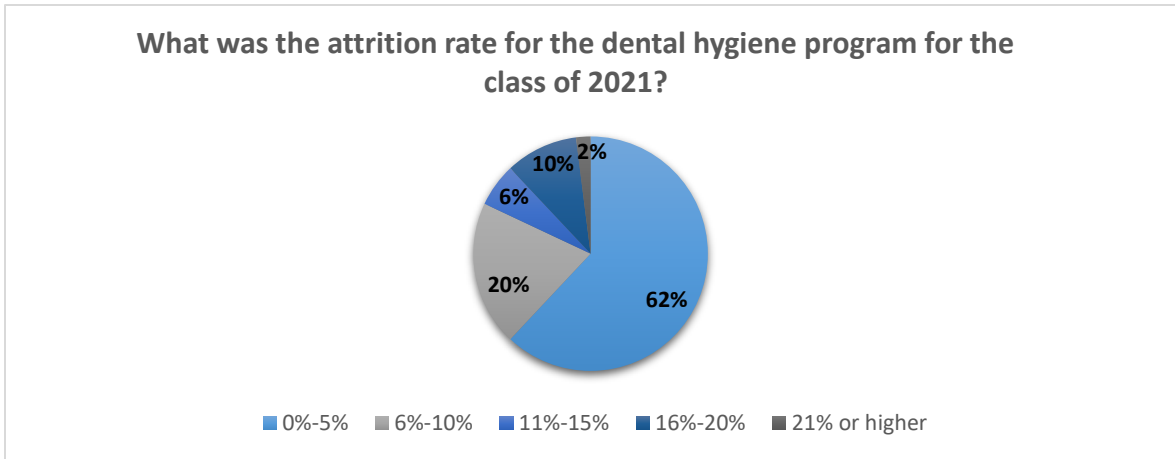


Figure 15: Attrition rates for the class of 2021

Question 16 was aimed at determining the attrition rates for the dental hygiene program for the class of 2022 among participating institutions (n=50). The participants were asked, “What was the attrition rate for the dental hygiene program for the class of 2022?” The results indicate that 27 programs (n=27) reported an attrition rate between 0% and 5%. Sixteen programs (n=16) reported a higher attrition rate of 6% to 10%, while four programs (n=4) reported rates of 11% to 15%. Additionally, two programs (n=2) indicated a rate of 16% to 20%, and one program (n=1) indicated 21% or higher. One participant did not provide an answer to this question (n=1). (Figure 16)

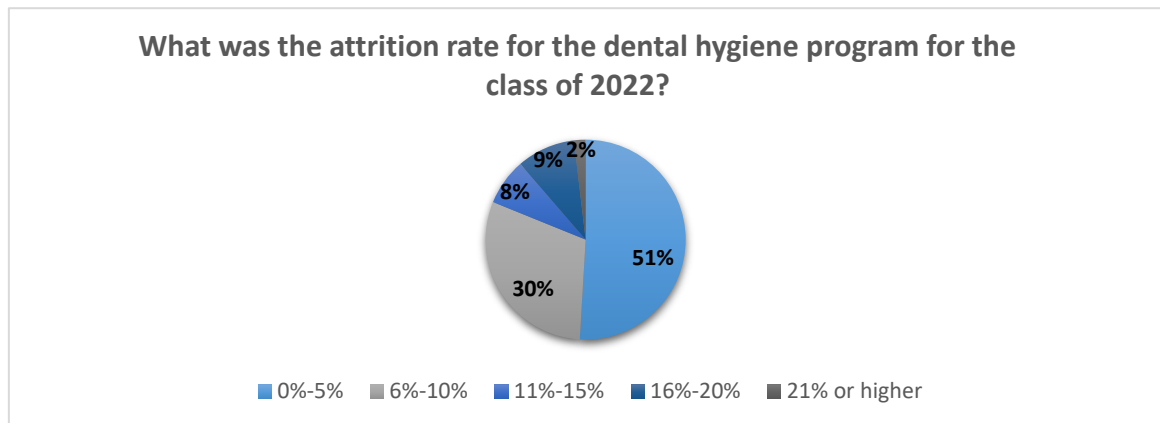


Figure 16: Attrition rates for the class of 2022

Respondents were surveyed about the key factors contributing to student attrition within their dental hygiene programs (n=49). Question 17 read, “Please select the key factors contributing to student attrition within your dental hygiene program. (Select all that apply)” Among the options provided, 73% (n=36) identified academic difficulties, 63% (n=31) selected personal challenges, 16% (n=8) indicated financial constraints, and 25% (n=12) reported other factors contributing to student attrition. (Figure 17)

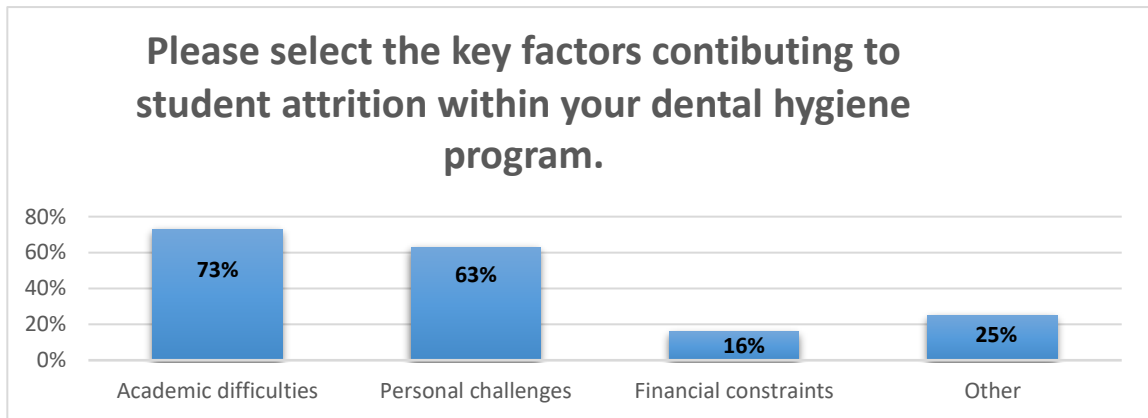


Figure 17: Contributing factors to student attrition

Question 18 explored the impact of student attrition on dental hygiene programs. The question asked was “How does student attrition impact your dental hygiene program? (Select all that apply)” Among the responses (n=51), 39% (n=20) identified financial implications. Additionally, 31% (n=16) mentioned concerns about institutional reputation, 22% (n=11) indicated that attrition affects faculty workload, 8% (n=4) noted challenges in maintaining program quality. Interestingly, 53% (n=27) reported no significant impact from student attrition. (Figure 18)

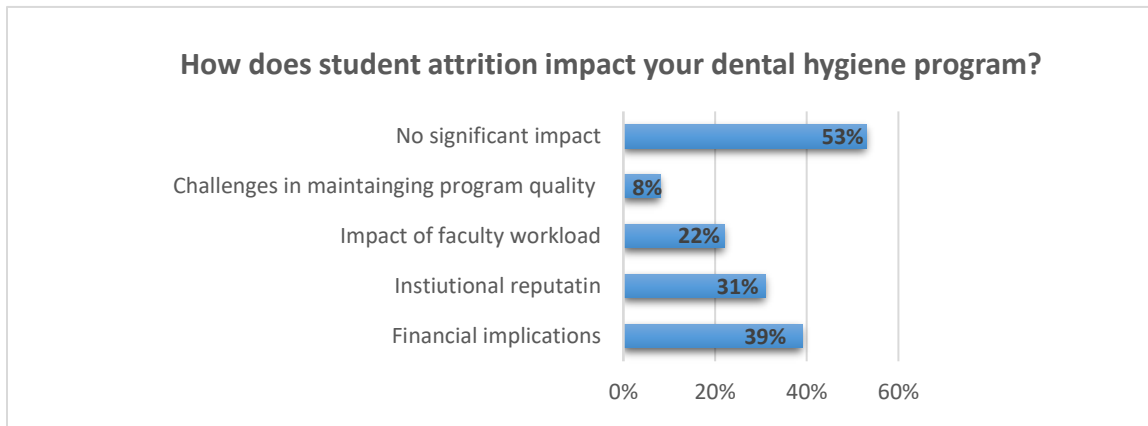


Figure 18: Impacts of attrition on dental hygiene programs

The survey inquired about the frequency with which dental hygiene programs reassess or update their admission criteria. The survey asked, “How often does your dental hygiene program reassess or update its admission criteria.” Among the dental hygiene programs (n=51), 67% (n=34) indicated that their programs reassess or update their admission criteria yearly. A smaller percentage, 8% (n=4), reported reassessing or updating biennially, while 24% (n=12) stated they do so every three to five years. Only 2% (n=1) indicated that their programs reassess or update their admission criteria rarely or never. (Figure 19)

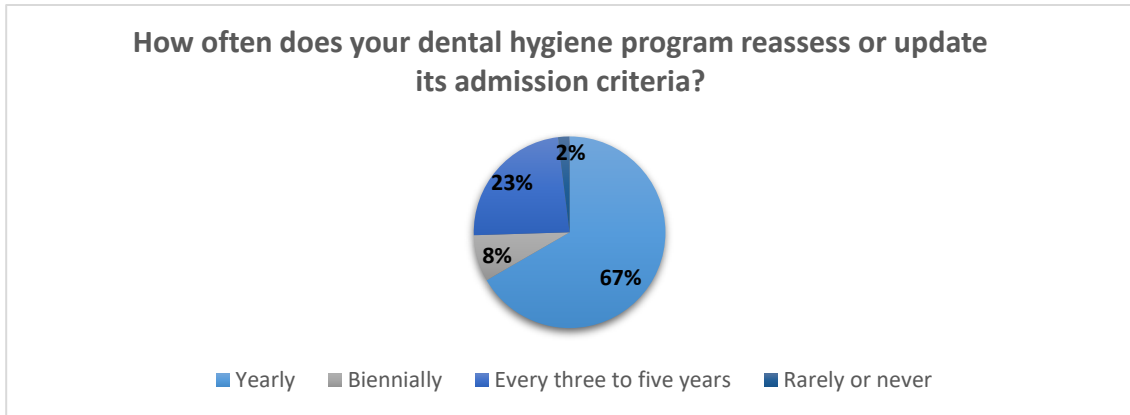


Figure 19: How often programs reassess admission criteria

When asked about confidence in utilizing non-cognitive predictors to determine a student’s academic success, responses varied among participants. Question 20 of the survey read, “How confident are you in utilizing non-cognitive predictors to determine a student’s academic success.” Of the programs that responded (n=51), 8% (n=4) reported feeling extremely confident, indicating a high level of assurance in using non-cognitive predictors. Thirty-four percent (n=17) expressed being somewhat confident, with 49% respondents (n=25) indicated neutral, 6% (n=3) reported feeling somewhat not confident, while 4% (n=2) stated they were extremely not confident in utilizing non-cognitive predictors for assessing academic success. (Figure 20)

How confident are you in utilizing non-cognitive predictors to determine a student's academic success?

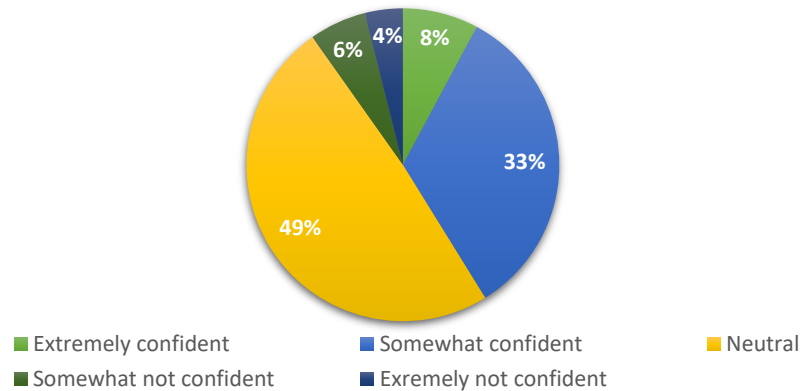


Figure 20: Confidence of utilizing non-cognitive predictors

The analysis of correlation data provided insights into the relationship between admission criteria and attrition rates. For the class of 2021, significant predictors of attrition included standardized tests scores, personal statements, college GPA and the use of the Dental Hygiene Centralized Application Service. Standardized test scores showed a significant negative correlation with attrition rates ($r = -.311$, $p < .05$). On the other hand, personal statements and college GPA exhibited significant positive correlations with attrition rates ($r = .329$, $p < .05$ and $r = .286$, $p < .05$, respectively). Additionally, the use of the Dental Hygiene Centralized Application Service correlated positively with attrition ($r = .280$, $p < .05$). For the class of 2022, standardized test scores continued to be a significant predictor of attrition, with negative correlation ($r = -.294$, $p < .05$). (Table 1)

Table 1

Correlations Among Various Admission Criteria and Attrition Rates

Variables	Class of 2021 Attrition	Class of 2022 Attrition
High School GPA	.107	.164
College GPA	.286*	-.180
Standardized tests	-.311*	-.294*
Letters of recommendation	.194	.141
Pre-admission interviews	.270	.218
Personal statements	.329*	.245
Previous dental experience	.052	.033
Dental Hygiene Centralized Application Service	.280*	.123

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The relationships among various admission criteria revealed complex interactions. High school GPA demonstrated a significant negative correlation with personal statements ($r = -.346, p < .05$), while College GPA showed significant negative correlations with standardized test scores ($r = -.298, p < .05$) and previous dental experience ($r = -.349, p < .05$). Standardized test scores had significant negative correlations with letters of recommendation ($r = -.400, p < .05$) and personal statements ($r = -.410, p < .05$). Meanwhile, letters of recommendation showed significant positive correlations with pre-admission interviews ($r = .452, p < .01$) and personal statements ($r = .407, p < .01$). Finally, pre-admission interviews were positively correlated with personal statements ($r = .401, p < .01$). (Table 2)

Table 2
Correlations Among Various Admission Criteria and Outcomes

Variable	1	2	3	4	5	6	7
1. High School GPA	---	.242	-.099	.142	.007	-.346*	-.142
2. College GPA	.242	---	-.298*	-.182	-.082	-.064	-.349*
3. Standardized test	-.099	-.298*	---	-.400*	.016	-.410*	.056
4. Letters of recommendation	.142	-.182	-.400*	---	.452**	.407**	.099
5. Pre-admission interviews	.007	-.082	.016	.452**	---	.401**	-.116
6. Personal statements	-.346*	-.064	-.410*	-.065	.401**	---	-.101
7. Previous dental experience	-.142	-.349*	.056	.099	-.101	-.116	---

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Discussion

The results of the survey provide an overview of the admission selection practices and current perspectives of accredited entry-level dental hygiene programs in the United States. The survey explored the prioritization of cognitive and non-cognitive admission criteria, as well as factors contributing to student attrition and its impacts on dental hygiene programs. A significant majority of the surveyed programs (73%) offer associate degrees as their entry-level, while 27% offer bachelor's degrees. This distribution suggests a strong preference for associate degrees in dental hygiene education, likely due to the shorter duration and lower cost compared to bachelor degrees.¹⁷ The absence of certificate programs indicates that the field of dental hygiene prioritizes more comprehensive training through degree programs.

The survey findings reveal a diverse set of criteria used in the admission process among dental hygiene programs. This study found that the majority of dental hygiene programs opt to manage admissions internally, with only 12% of programs making use of services like the Dental Hygiene Centralized Application Service (DHCAS) for their

admission selection process. It was also determined that majority of the programs place a greater emphasis on cognitive predictors than non-cognitive factors within their admission criterion.

The majority of programs (84%) do not consider high school GPA in their admission selection process, suggesting that they prioritize other criteria. However, 92% of the programs surveyed indicated they consider college GPA in their admission criteria, with majority prioritizing overall college GPA and college science GPA. This preference for college GPA suggests that programs value post-secondary academic performance more highly than high school achievements, possibly due to the more relevant and rigorous nature of college coursework. Other cognitive factors examined in this study include standardized tests. Standardized test scores are used by nearly 49% of the programs, with a variety of tests being utilized. The ACT is the most commonly used test (36%), followed by the SAT (24%), and other types of standardized tests (64%).

Non-cognitive predictors were also examined in this survey. Only 37% of programs use pre-admission interviews, and 39% take personal statements into consideration. This suggests that while some programs value direct interaction and personal expression, a majority rely more on quantitative measures like GPA and test scores. A smaller proportion of programs consider other forms to predict a student's success. In the survey, 24% indicated using letters of recommendation, and 41% consider previous dental experience in their admission selection process. These criteria are used to gain insights into the applicant's motivation and understanding of the dental hygiene

profession. The inclusion of these non-cognitive factors suggests a varied approach to assessing applicant readiness beyond academic criteria.⁷

The attrition rates differ among programs, with most reporting low rates (0-5%) for the classes of 2021 and 2022. However, certain programs indicated having higher rates, showing a variation in student retention across institutions. The survey results indicate that program directors believe the primary factors contributing to attrition include academic challenges, personal difficulties, and financial constraints. The impact of attrition is multifaceted, having implications on institutional reputation, faculty workloads, program quality, and even financially. Interestingly, 35% of programs indicated that student attrition has no significant impact on their program. A majority of the programs (67%) reassesses or updates their admission criteria annually, demonstrating a proactive approach to maintaining the relevance and effectiveness of their selection processes. Such practices can significantly contribute to reducing attrition and identifying key factors for supporting students' overall success.

Based on the analysis of correlation data for the class of 2021, significant predictors of attrition were standardized test scores, personal statements, college GPA, and the use of the Dental Hygiene Centralized Application Service. Standardized test scores showed a significant negative correlation with attrition rates, suggesting higher standardized test scores are associated with lower attrition rates. On the other hand, personal statements and college GPA exhibited significant positive correlations with attrition rates, indicating that stronger personal statements and higher college GPAs are associated with higher attrition rates. The use of the Dental Hygiene Centralized

Application Service also showed a positive correlation with attrition, indicating that programs utilizing this centralized service may experience higher attrition rates. This could suggest that while the service may streamline the application process and increase applicant pool, it might lead to the admission of students who are less likely to complete the program. For the class of 2022, standardized test scores continued to be a significant predictor of attrition, with a negative correlation, reinforcing the importance of standardized test scores as a reliable indicator of student retention.

The analysis revealed relationships among various admission criteria. High school GPA showed a significant negative correlation with personal statements suggesting that higher high school GPAs are associated with weaker personal statements. College GPA exhibited significant negative correlations with standardized test scores and previous dental experience, indicating that higher college GPAs might be linked with lower standardized test scores and less prior dental experience. Standardized test scores had significant negative correlations with letters of recommendation and personal statements, suggesting higher standardized test scores may be associated with weaker qualitative evaluations. Conversely, letters of recommendation showed significant positive correlations with pre-admission interviews and personal statements, indicating stronger letters of recommendation are often associated with better performance in pre-admission interviews and stronger personal statements. Pre-admission interviews were positively correlated with personal statements, suggesting that candidates who perform well in interviews also tend to have strong personal statements.

It is important to consider the small sample size of this survey; the results might not be comparable to a larger sample size. Small sample can lead to higher variability and might affect the reliability of the observed correlations. It is essential to interpret these findings cautiously and consider them as preliminary insights rather than definitive conclusions.

Conclusion

This survey highlights the complexity and diversity of admission practices and challenges faced by dental hygiene programs throughout the United States. The emphasis on college GPA and the varied use of standardized tests and non-cognitive factors reflect a comprehensive approach to student selection and retention. Standardized test scores emerged as the most consistent and significant predictor of attrition, suggesting their importance in the admissions process. The interaction between various cognitive and non-cognitive factors emphasizes the necessity for a comprehensive approach to admissions, incorporating both quantitative and qualitative measures for accurately predicting student success and retention. Regular reassessment of admission criteria can help address the challenges leading to student attrition, ultimately enhancing the overall quality and effectiveness of dental hygiene programs. Attrition remains a significant concern, with academic difficulties, personal challenges, and financial constraints identified as key contributors. The impact of attrition on programs underscores the need for targeted strategies to support student success and retention. Future research should be developed to explore effective interventions to reduce attrition and enhance the overall quality of dental hygiene education.

Chapter V: Article for Submission

Journal of Dental Hygiene

Title Page

ADMISSION REQUIREMENTS AMONG DENTAL HYGIENE PROGRAMS: KEY
INDICATORS TO STUDENT SUCCESS

Justin Nance RDH, BSDH

University of New Mexico

JRNance@salud.unm.edu

ABSTRACT

Purpose: This study investigated the admission criteria utilized by dental hygiene programs to determine the most effective predictors of students' academic success and retention. Data were collected by surveys that were emailed to program directors of accredited dental hygiene programs, focusing on their admission criteria and retention.

Methods: A survey with multiple-choice questions was distributed to entry-level dental hygiene programs. Participants provided information about their program's admission criteria. The survey was opened for four weeks, and the data collected were analyzed using descriptive statistics.

Results: Findings revealed a majority emphasize cognitive predictors over non-cognitive factors in admissions. While 84% do not consider high school GPA, 92% consider college GPA, prioritizing overall and science GPAs. Standardized tests are used by 49% of programs, with the ACT being the most common. Non-cognitive factors like pre-admission interviews and personal statements are used by 37% and 39% of programs, respectively. Attrition rates for 2021 and 2022 were mostly low (0-5%), with academic challenges, personal difficulties, and financial constraints as key contributors. Most programs (67%) reassess admission criteria annually. Higher standardized test scores were linked to lower attrition, while higher college GPAs and personal statements are associated with higher attrition.

Conclusion: The complexity of admission practices highlights the importance of identifying key indicators for student success. Emphasizing college GPA and a varied use of standardized tests and non-cognitive factors reflect a comprehensive approach to student selection. Regular reassessment of admission criteria can help enhance program quality and effectiveness by addressing challenges leading to student attrition.

Introduction

Student retention is a critical component of dental hygiene programs nationwide. Various studies have explored retention factors that lead to academic success among allied health programs. Evidenced-based admission criteria of academic and non-academic factors could result in academic success among students entering a program in an effort to maintain retention.

The program administrator of an accredited dental hygiene program must have the authority and responsibility necessary to fulfill program goals, including coordinating and evaluating admission criteria. Admission of students into a program should be based on specific written criteria, procedures, and policies designed to increase retention. Programs must establish a process to ensure students meet academic and professional success. Enrollment among programs is limited due to capacity limits; therefore, it is essential for a program to design written, non-discriminatory admission requirements to ensure students are selected who have the potential for successfully completing the program.¹ The aim of this study is to identify the key indicators of student success in a dental hygiene program by determining the admission criteria that should be considered.

Significance of the Problem

Admission criteria play crucial role in predicting a students' academic performance, reducing attrition, and supporting the completion of coursework leading to licensure. The admission process aims to select candidates most likely to succeed within a program. The Commission on Dental Accreditation (CODA) mandates that dental hygiene programs track and report attrition and retention rates, holding them accountable for student success.

Students admitted to dental hygiene programs generally intend to complete their coursework and become licensed oral healthcare professionals. Therefore, admission requirements should be structured to maximize retention and graduation rates. Programs with more selective admission criteria typically see higher academic success among their students. Conversely, less selective criteria may increase the applicant pool but can result in lengthy waitlists and potentially at-risk candidates occupying spots over more qualified individuals.

Program administrators and admission committees are tasked with determining which admission criteria will likely indicate a student's academic success and increase retention once admitted into the dental hygiene program. Student retention in higher education is typically defined as the continued enrollment of a student from the first year to the second year.² Student attrition rates and degree or program completion have always been critical components in higher education for many decades and, according to research, have become one of the main focuses across colleges and universities nationwide. As students fail to persist throughout their academic coursework, there are many impacts that academic institutions face. Student persistence is prominent in

institutional financial planning, as students' tuition and fees drive institutional revenue. The higher the retention rate at an institution, the more students continue to enroll, paying tuition and fees, generating income, and leading to institutional financial success. When student retention is low, an institution's reputation is also impacted. Colleges and universities spend a significant amount of resources to identify and attract potential students, and when retention decreases, these efforts become a loss.³ Selecting prospective students who will ultimately graduate and are successful on licensure examinations is crucial to the success and longevity of dental hygiene programs.

If a student does not complete the program, it is ordinarily difficult for a dental hygiene program to replace that student. The inability to replace a student creates a void that cannot be filled until the program completes another admission cycle, in most cases a year later. With many dental hygiene programs having self-contained patient clinics, programs have high budgetary expenses relying greatly on student persistence to ensure financial attainment. While student attrition is a primary concern for institutions nationwide, there is still the need for more research to determine what institutions and dental hygiene programs can do to improve retention.

The evaluation of various admission criteria used by program administrators and selection committees in dental hygiene programs underscores the importance of ensuring student success. The selection process involves considering both cognitive and non-cognitive measures, as key indicators for the success of each applicant. Cognitive factors such as high school and college GPAs, as well as standardized test scores, are widely regarded as indicative of academic achievement. These measures can provide valuable insights into a student's ability to excel in an academic setting. In addition, non-cognitive

factors, such as pre-admission interviews, personal statements, previous dental experience, and letters of recommendation, are believed to provide valuable insight into a candidate's character, motivation, and potential for success beyond academic achievements. These criteria provide a comprehensive view of the candidate, highlighting personal traits, communication abilities, and career goals that may not be fully captured by cognitive assessments alone.^{7,16}

Selection committees recognize the significance of identifying key cognitive and non-cognitive factors in identifying candidates who demonstrate not only academic promise but also the personal attributes and qualities necessary for success in the field of dental hygiene.

In order to ensure the success of students in dental hygiene programs, administrators and educators need to establish admission requirements that align with indicators of student success. It is crucial to identify key predictors for selecting candidates, as success in these programs not only depends on academic performance but also on passing the National Board Dental Hygiene Examination (NBDHE) for licensure. By carefully considering these factors, dental hygiene programs can admit students who are more likely to thrive and succeed in their studies, but also possess personal attributes and qualities necessary for success in the field of dental hygiene.

Methods and Materials

This descriptive study evaluated both cognitive (academic) and non-cognitive (personal) factors considered in the admission process and their correlation with student retention rates in dental hygiene programs. The research investigated cognitive and non-cognitive admission criteria and student retention rates for students who matriculated in

2021 and 2022. The results of this study provide insights into how to develop more effective admission criteria that can better predict student success and retention in the program. The results of the study could influence future admission policies and practices in dental hygiene programs, ultimately leading to better outcomes for both students and institutions.

The survey was sent to a convenience sample of dental hygiene program directors who hold the responsibility of managing the admission selection process. To ensure a representative sample, the number of invited participants was determined based on the total number of accredited dental hygiene programs in the United States. The identification of these programs was carried out using the 2020-21 American Dental Association Commission on Dental Accreditation annual survey. Through this approach, a total of 327 accredited undergraduate dental hygiene programs were identified and considered for this study. Participation in this study was completely voluntary.

Upon approval from the University of New Mexico's Institutional Review Board, Human Research Protection Office (HRPO), an initial email was sent out to all accredited dental hygiene program directors nationwide. The email contained a Recruitment Letter with a link to the survey. The questions of the survey consisted of 20 multiple-choice questions that took approximately 5-10 minutes to complete. This survey collected information on demographics, admission requirements, and student retention rates from directors of dental hygiene programs for the graduating classes of 2021 and 2022. The survey was open for four weeks, with a reminder email being sent two weeks following initial for additional recruitment efforts. The survey did not collect personal information and the responses were anonymous. The results of the survey provide an overview of the

admission selection practices and current perspectives of accredited entry-level dental hygiene programs in the United States. The survey explored the prioritization of cognitive and non-cognitive admission criteria, as well as factors contributing to student attrition and its impacts on dental hygiene programs.

Results

The survey was distributed to 327 program directors, and 52 responses were received, resulting in a response rate of 16%. To be included in the data analysis, respondents had to confirm graduating classes for the years 2021 and 2022. One program did not meet this criterion, reducing the overall response rate for analysis to 98% (n=51). The survey inquired about the types of entry-level degrees offered by these institutions. The majority (73%) reported offering associate degrees, while 27% offer bachelor's degrees. None of the programs offered certificates.

The survey findings reveal a diverse set of criteria used in the admission process among dental hygiene programs. This study found that the majority of dental hygiene programs opt to manage admissions internally, with only 12% (n=6) of programs making use of services like the Dental Hygiene Centralized Application Service (DHCAS) for their admission selection process.

The majority of programs (84%, n=43) do not consider high school GPA in their admission selection process. However, 92% (n=47) of the programs surveyed indicated they consider college GPA in their admission criteria, with majority prioritizing overall college GPA 83% (n=30), while 64% (n=30) consider college science GPA and 11% (n=5) consider none-science GPA. Other cognitive factors examined in this study include

standardized tests. Standardized test scores are used by nearly 49% (n=25) of the programs, whereas 51% (n=26) indicated that they do not incorporate standardized test scores into their admission criteria. Among the programs that use standardized test scores (n=25), 36% (n=9) utilize the ACT, 24% (n=6) use the SAT, 4% (n=1) use the Dental Hygiene Aptitude Test (DHAT), and 64% (n=16) reported using other types of standardized tests. Those who responded using other standardized tests included 8 programs (n=8) who used the Test of Essential Academic Skills (TEAS), 2 (n=2) who used the Health Education Systems, Inc. Exam (HESI), and 1 program (n=1) who reported using the Wonderlic test.

Non-cognitive predictors were also examined in this survey. Out of 49 respondents, only 37% confirmed that their programs utilize pre-admission interviews, while 63% (n=31) indicated that they do not include pre-admission interviews in their selection process. Additionally, out of 51 respondents, 24% (n=12) confirmed that their programs consider letters of recommendation, while 76% (n=39) indicated that they do not. The survey investigated the use of personal statements as part of the admission process in entry-level dental hygiene programs. Thirty-nine percent (n=20) affirmed that their programs do consider personal statements, while 61% (n=31) indicated that they do not incorporate personal statements into their admission process. Finally, it was investigated which programs consider previous dental experience in their selection process. The data showed that 41% (n=21) confirmed that their programs do consider previous dental experience, while 59% (n=30) indicated that they do not include previous dental experience as a criterion in their admission selection.

The survey examined the prioritization of various cognitive and non-cognitive admission criteria in entry-level dental hygiene programs. Among the 50 respondents (n=50), 12% considered high school GPA a high priority, while 8% found it neutral and 8% low priority; 72% deemed it not applicable. In contrast, among programs utilizing college GPA, 76% ranked it highest, 12% as moderate, 4% neutral, 2% low priority, and 6% not applicable. For standardized test scores, 22% were high priority, 18% moderate, 6% neutral, 10% low priority, and 44% not applicable. None prioritized letters of recommendation highly, but 16% considered them moderate, 8% neutral, 4% low priority, and 72% not applicable. Regarding preadmission interviews, 12% were high priority, 20% moderate, 4% neutral, 2% low priority, and 62% not applicable. Personal statements were high priority for 2%, moderate for 20.4%, neutral for 14.3%, low priority for 6.1%, and 57.1% not applicable. Previous dental experience was high priority for 4%, moderate for 22%, neutral for 14%, low priority for 12%, and 48% not applicable.

(Figure 1)

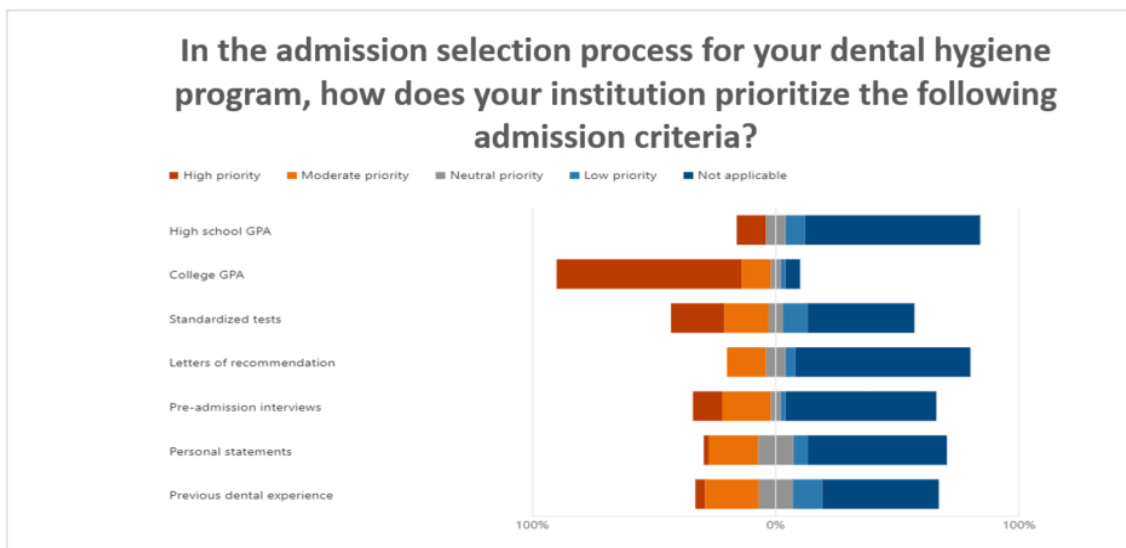


Figure 1: Prioritization of cognitive and non-cognitive admission criteria

Regarding attrition rates for the class of 2021, 31 programs reported (n=31) an attrition rate between 0% and 5%, 10 programs (n=10) reported rates of 6% to 10%, three programs(n=3) reported rates of 11% to 15%, five programs (n=5) indicated rates of 16% to 20%, and one program reported (n=1) an attrition rate of 21% or higher. For the class of 2022, 27 programs (n=27) reported an attrition rate between 0% and 5%, 16 programs (n=16) reported rates of 6% to 10%, four programs (n=4) reported rates of 11% to 15%, two programs(n=2) indicated rates of 16% to 20%, and one program(n=1) reported an attrition rate of 21% or higher.

Respondents identified key factors contributing to student attrition, with 73% (n=36) citing academic difficulties, 63% (n=31) personal challenges, 16% (n=8) financial constraints, and 25% (n=12) other factors. (Figure 2) Regarding the impact of student attrition on dental hygiene programs, 39% (n=20) identified financial implications. Additionally, 31% (n=16) mentioned concerns about institutional reputation, 22% (n=11) indicated that attrition affects faculty workload, 8% (n=4) noted challenges in maintaining program quality. Interestingly, 53% (n=27) reported no significant impact from student attrition. (Figure 3)

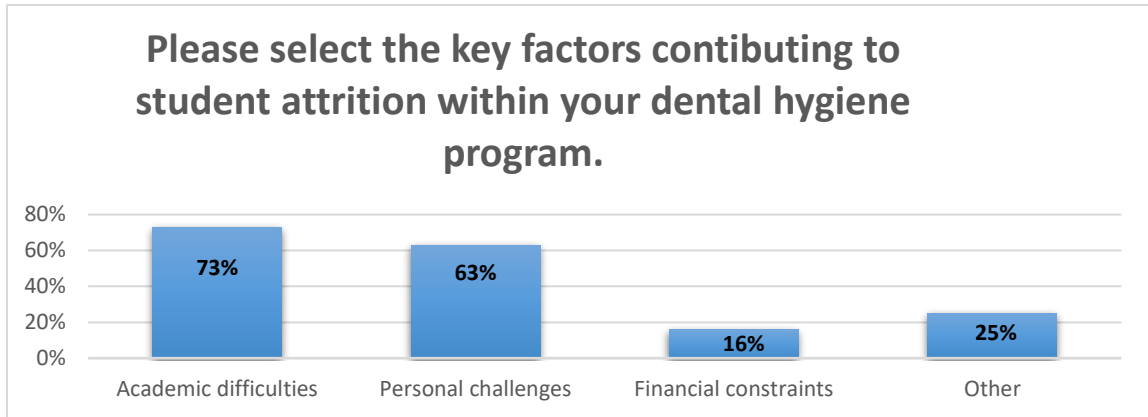


Figure 2: Contributing factors to student attrition

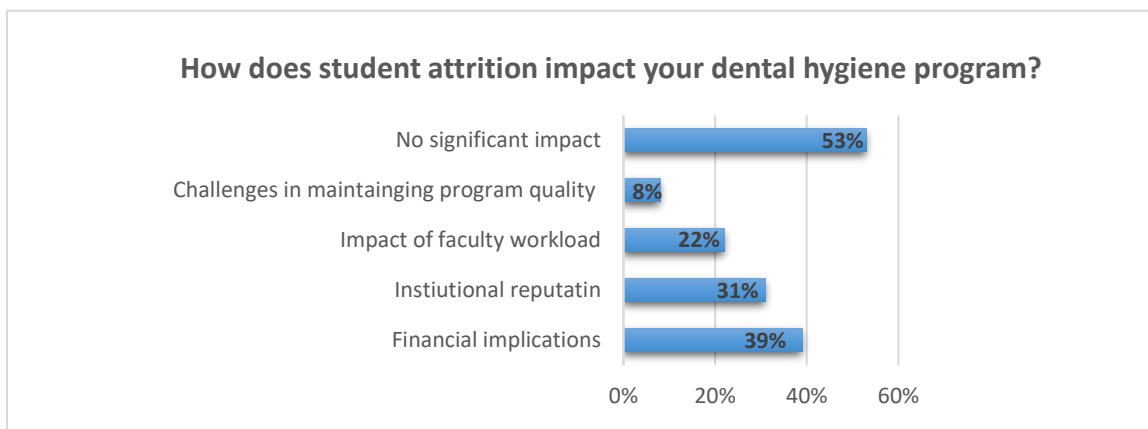


Figure 3: Impacts of attrition on dental hygiene programs

The survey asked how often dental hygiene programs reassess or update their admission criteria. Of the respondents, 67% (n=34) said their programs do this yearly. A smaller 8% (n=4) reported doing so every two years, while 24% (n=12) stated they reassess or update their criteria every three to five years. Only 2% (n=1) mentioned that their programs rarely or never reassess or update their admission criteria.

When asked about confidence in utilizing non-cognitive predictors to determine a student's academic success, responses varied among participants. Of the programs that responded (n=51), 8% (n=4) reported feeling extremely confident, indicating a high level of assurance in using non-cognitive predictors. Thirty-four percent (n=17) expressed being somewhat confident, with 49% respondents (n=25) indicated neutral, 6% (n=3) reported feeling somewhat not confident, while 4% (n=2) stated they were extremely not confident in utilizing non-cognitive predictors for assessing academic success. (Figure 4)

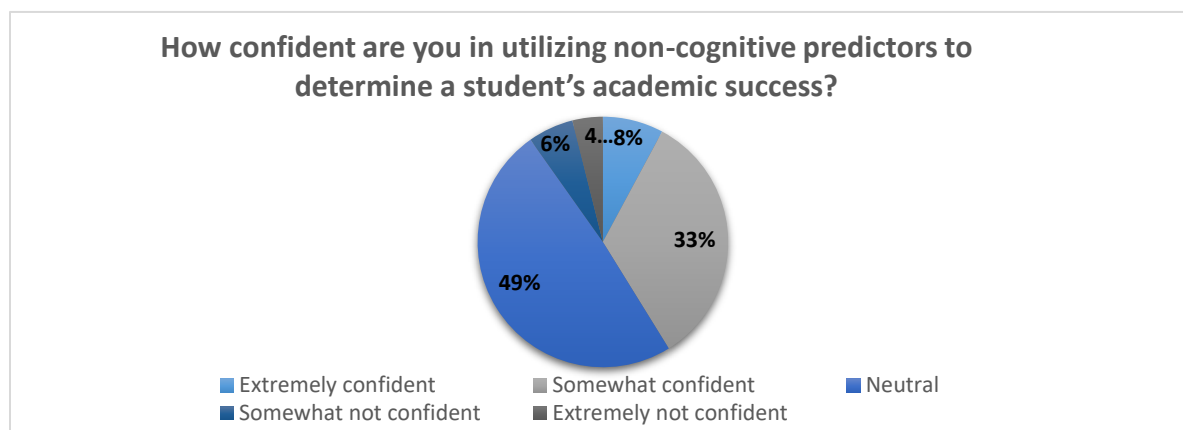


Figure 4: Confidence of utilizing non-cognitive predictors

The analysis of correlation data provided insights into the relationship between admission criteria and attrition rates. For the class of 2021, significant predictors of attrition included standardized tests scores, personal statements, college GPA and the use of the Dental Hygiene Centralized Application Service. Standardized test scores showed a significant negative correlation with attrition rates ($r = -.311$, $p < .05$). On the other hand, personal statements and college GPA exhibited significant positive correlations with attrition rates ($r = .329$, $p < .05$ and $r = .286$, $p < .05$, respectively). Additionally, the use of the Dental Hygiene Centralized Application Service correlated positively with attrition ($r = .280$, $p < .05$). For the class of 2022, standardized test scores continued to

be a significant predictor of attrition, with negative correlation ($r = -.294, p < .05$). (Table 1)

Table 1
Correlations Among Various Admission Criteria and Attrition Rates

Variables	Class of 2021 Attrition	Class of 2022 Attrition
High School GPA	.107	.164
College GPA	.286*	-.180
Standardized tests	-.311*	-.294*
Letters of recommendation	.194	.141
Pre-admission interviews	.270	.218
Personal statements	.329*	.245
Previous dental experience	.052	.033
Dental Hygiene Centralized Application Service	.280*	.123

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The relationships among various admission criteria revealed complex interactions. High school GPA demonstrated a significant negative correlation with personal statements ($r = -.346, p < .05$), while College GPA showed significant negative correlations with standardized test scores ($r = -.298, p < .05$) and previous dental experience ($r = -.349, p < .05$). Standardized test scores had significant negative correlations with letters of recommendation ($r = -.400, p < .05$) and personal statements ($r = -.410, p < .05$). Meanwhile, letters of recommendation showed significant positive correlations with pre-admission interviews ($r = .452, p < .01$) and personal statements ($r =$

.407, $p < .01$). Finally, pre-admission interviews were positively correlated with personal statements ($r = .401$, $p < .01$). (Table 2)

Table 2
Correlations Among Various Admission Criteria and Outcomes

Variable	1	2	3	4	5	6	7
1. High School GPA	---	.242	-.099	.142	.007	-.346*	-.142
2. College GPA	.242	---	-.298*	-.182	-.082	-.064	-.349*
3. Standardized test	-.099	-.298*	---	-.400*	.016	-.410*	.056
4. Letters of recommendation	.142	-.182	-.400*	---	.452**	.407**	.099
5. Pre-admission interviews	.007	-.082	.016	.452**	---	.401**	-.116
6. Personal statements	-.346*	-.064	-.410*	-.065	.401**	---	-.101
7. Previous dental experience	-.142	-.349*	.056	.099	-.101	-.116	---

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Discussion

The results of the survey provide an overview of the admission selection practices and current perspectives of accredited entry-level dental hygiene programs in the United States. The survey explored the prioritization of cognitive and non-cognitive admission criteria, as well as factors contributing to student attrition and its impacts on dental hygiene programs. A significant majority of the surveyed programs (73%) offer associate degrees as their entry-level, while 27% offer bachelor's degrees. This distribution suggests a strong preference for associate degrees in dental hygiene education, likely due to the shorter duration and lower cost compared to bachelor degrees.¹⁷ The absence of certificate programs indicates that the field of dental hygiene prioritizes more comprehensive training through degree programs.

The survey findings reveal a diverse set of criteria used in the admission process among dental hygiene programs. This study found that the majority of dental hygiene

programs opt to manage admissions internally, with only 12% of programs making use of services like the Dental Hygiene Centralized Application Service (DHCAS) for their admission selection process. It was also determined that majority of the programs place a greater emphasis on cognitive predictors than non-cognitive factors within their admission criterion.

The majority of programs (84%) do not consider high school GPA in their admission selection process, suggesting that they prioritize other criteria. However, 92% of the programs surveyed indicated they consider college GPA in their admission criteria, with majority prioritizing overall college GPA and college science GPA. This preference for college GPA suggests that programs value post-secondary academic performance more highly than high school achievements, possibly due to the more relevant and rigorous nature of college coursework. Other cognitive factors examined in this study include standardized tests. Standardized test scores are used by nearly 49% of the programs, with a variety of tests being utilized. The ACT is the most commonly used test (36%), followed by the SAT (24%), and other types of standardized tests (64%).

Non-cognitive predictors were also examined in this survey. Only 37% of programs use pre-admission interviews, and 39% take personal statements into consideration. This suggests that while some programs value direct interaction and personal expression, a majority rely more on quantitative measures like GPA and test scores. A smaller proportion of programs consider other forms to predict a student's success. In the survey, 24% indicated using letters of recommendation, and 41% consider previous dental experience in their admission selection process. These criteria are used to

gain insights into the applicant's motivation and understanding of the dental hygiene profession. The inclusion of these non-cognitive factors suggests a varied approach to assessing applicant readiness beyond academic criteria.⁷

The attrition rates differ among programs, with most reporting low rates (0-5%) for the classes of 2021 and 2022. However, certain programs indicated having higher rates, showing a variation in student retention across institutions. The survey results indicate that program directors believe the primary factors contributing to attrition include academic challenges, personal difficulties, and financial constraints. The impact of attrition is multifaceted, having implications on institutional reputation, faculty workloads, program quality, and even financially. Interestingly, 35% of programs indicated that student attrition has no significant impact on their program. A majority of the programs (67%) reassesses or updates their admission criteria annually, demonstrating a proactive approach to maintaining the relevance and effectiveness of their selection processes. Such practices can significantly contribute to reducing attrition and identifying key factors for supporting students' overall success.

Based on the analysis of correlation data for the class of 2021, significant predictors of attrition were standardized test scores, personal statements, college GPA, and the use of the Dental Hygiene Centralized Application Service. Standardized test scores showed a significant negative correlation with attrition rates, suggesting higher standardized test scores are associated with lower attrition rates. On the other hand, personal statements and college GPA exhibited significant positive correlations with attrition rates, indicating that stronger personal statements and higher college GPAs are

associated with higher attrition rates. The use of the Dental Hygiene Centralized Application Service also showed a positive correlation with attrition, indicating that programs utilizing this centralized service may experience higher attrition rates. This could suggest that while the service may streamline the application process and increase applicant pool, it might lead to the admission of students who are less likely to complete the program. For the class of 2022, standardized test scores continued to be a significant predictor of attrition, with a negative correlation, reinforcing the importance of standardized test scores as a reliable indicator of student retention.

The analysis revealed relationships among various admission criteria. High school GPA showed a significant negative correlation with personal statements suggesting that higher high school GPAs are associated with weaker personal statements. College GPA exhibited significant negative correlations with standardized test scores and previous dental experience, indicating that higher college GPAs might be linked with lower standardized test scores and less prior dental experience. Standardized test scores had significant negative correlations with letters of recommendation and personal statements, suggesting higher standardized test scores may be associated with weaker qualitative evaluations. Conversely, letters of recommendation showed significant positive correlations with pre-admission interviews and personal statements, indicating stronger letters of recommendation are often associated with better performance in pre-admission interviews and stronger personal statements. Pre-admission interviews were positively correlated with personal statements, suggesting that candidates who perform well in interviews also tend to have strong personal statements.

It is important to consider the small sample size of this survey; the results might not be comparable to a larger sample size. Small sample can lead to higher variability and might affect the reliability of the observed correlations. It is essential to interpret these findings cautiously and consider them as preliminary insights rather than definitive conclusions.

Conclusion

This survey highlights the complexity and diversity of admission practices and challenges faced by dental hygiene programs throughout the United States. The emphasis on college GPA and the varied use of standardized tests and non-cognitive factors reflect a comprehensive approach to student selection and retention. Standardized test scores emerged as the most consistent and significant predictor of attrition, suggesting their importance in the admissions process. The interaction between various cognitive and non-cognitive factors emphasizes the necessity for a comprehensive approach to admissions, incorporating both quantitative and qualitative measures for accurately predicting student success and retention. Regular reassessment of admission criteria can help address the challenges leading to student attrition, ultimately enhancing the overall quality and effectiveness of dental hygiene programs. Attrition remains a significant concern, with academic difficulties, personal challenges, and financial constraints identified as key contributors. The impact of attrition on programs underscores the need for targeted strategies to support student success and retention. Future research should be developed to explore effective interventions to reduce attrition and enhance the overall quality of dental hygiene education.

Appendices

Appendix A: Approval Letter



Human Research Protections Program

March 25, 2024
Robin Gatlin
robing@salud.unm.edu

Dear Robin Gatlin:

On 3/25/2024, the HRRC reviewed the following submission:

Type of Review: Initial Study
Title of Study: Admission Requirements Among Dental Hygiene Programs:
Key Indicators to Student Success.
Investigator: Robin Gatlin
Study ID: 24-127
Submission ID: 24-127
IND, IDE, or HDE: None

Submission Summary: Initial Study

Documents Approved: • HRP-507 Consent
• HRP-538-Exempt Category 2
• Recruitment Letter
• Survey

Review Category: EXEMPTION: Categories (2)(i) Tests, surveys, interviews, or
observation (non-identifiable)

Determinations/Waivers: Employees.
Provisions for Consent are adequate.
HIPAA Authorization Addendum Not Applicable.

Submission Approval Date: 3/25/2024
Approval End Date: None
Effective Date: 3/25/2024

The HRRC approved the study from 3/25/2024 to inclusive. If modifications were required to secure approval, the effective date will be later than the approval date. The "Effective Date" 3/25/2024 is the date the HRRC approved your modifications and, in all cases, represents the date study activities may begin.

Because it has been granted exemption, this research is not subject to continuing review.

Appendix B: Consent and Authorization to Participate

The University of New Mexico Health Sciences Center Consent and Authorization to Participate in a Research Study

Dear Prospective Participant,

Researchers at the University of New Mexico are inviting you to take part in a survey about Admission Criteria utilized Among Dental Hygiene Programs for Student Success. Admission selection committees and program directors are currently being surveyed to investigate the admission criteria used by entry-level dental hygiene programs throughout the United States. The primary objective of this study is to compare various admission criterion with student retention rates to identify the most effective indicators that dental hygiene programs can use to enhance retention.

WHAT ARE THE KEY REASONS YOU MIGHT CHOOSE TO VOLUNTEER FOR THIS STUDY?

The information collected in this study will provide helpful information to admission selection committees and program administrators regarding the key indicators that can be utilized in the candidate selection process. Although you may not get personal benefit from taking part in this research study, your responses may help us understand more about importance of admission selection criterion and improving retention rates for entry-level dental hygiene programs.

WHAT ARE THE KEY REASONS YOU MIGHT NOT CHOOSE TO VOLUNTEER FOR THIS STUDY?

There could be several reasons why someone might not choose to volunteer for this study. Some individuals may not have the time to commit to participating in the study, while other might not feel comfortable sharing information, or fully understand purpose or potential benefits of the study.

The survey will take about 5-10 minutes to complete.

There are no known risks to participating in this study.

Your response to the survey is anonymous which means no names will appear or be used on research documents, or be used in presentations or publications. The research team will not know that any information you provided came from you, nor even whether you participated in the study. Your response to the survey will be kept confidential to the extent allowed by law. When we write about the study and its results you will not be identified.

Identifiable information such as your name, clinical record number, or date of birth may be removed from the information collected in this study. After removal, the information may be used for future research or shared with other researchers without your additional informed consent.

We hope to receive completed questionnaires from about 50 percent people, so your answers are important to us. Of course, you have a choice about whether or not to complete the survey/questionnaire, but if you do participate, you are free to skip any questions or discontinue at any time.

Please be aware, while we make every effort to safeguard your data once received on our servers via Microsoft Forms, given the nature of online surveys, as with anything involving the Internet, we can never guarantee the confidentiality of the data while being transmitted to us.

If you have questions about the study, please feel free to ask; my contact information is given below. If you have questions regarding your legal rights as a research subject, you may call the UNM Human Research Protections Office at (505) 272-1129.

Thank you in advance for your assistance with this important project. To ensure your responses/opinions will be included, please submit your completed survey/questionnaire by [Date]. By clicking on the link below, you will be agreeing to participate in the above described research study.

Sincerely,

Robin Gatlin, MSDH, RDH
Division of Dental Hygiene, Department of Dental Medicine
University of New Mexico, School of Medicine
PHONE: 505-272-0838
E-MAIL: RobinG@salud.unm.edu

Appendix C: Survey

1. Did your entry-level dental hygiene program have graduating classes in the years 2021 and 2022?

Yes

No

2. What entry-level dental hygiene program does your college/university offer?

Certificate

Associate's degree

Bachelor's degree

3. Does your entry-level dental hygiene program use Dental Hygiene Centralized Application Services (DHCAS) in your admission selection process?

Yes

No

4. Does your entry-level dental hygiene program consider a *high school GPA* as part of its admission criterion?

Yes

No

5. If yes, which high school GPA(s) are considered? (Select all that apply)

Overall GPA

Science GPA

Non-science GPA

6. Does your entry-level dental hygiene program consider *college GPA* as part of its admission criterion?

Yes

No

7. If yes, which college, GPA(s) are considered? (Select all that apply)

Overall GPA

Science GPA

Non-science GPA

8. Does your entry-level dental hygiene program utilize *standardized test* scores as an admission criterion?

Yes

No

9. If yes, which standardized tests are utilized for admission selection? (Select all that apply)

- ACT
- SAT
- Dental Hygiene Aptitude Test (DHAT)
- Other: _____

10. Does your program utilize *pre-admission interviews* as part of the selection process?

- Yes
- No

11. Does your program consider *letter of recommendations* as part of the admission process?

- Yes
- No

12. Does your program consider *personal statements* as part of the admission process?

- Yes
- No

13. Does your entry-level dental hygiene program consider *previous dental experience* in the admission selection?

- Yes
- No

14. In the admission selection process for your dental hygiene program, how does your institution prioritize the following admission criteria?

	High Priority	Moderate Priority	Neutral Priority	Low Priority	Not Applicable
High School GPA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
College GPA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standardized tests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Letters of recommendation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pre-admission interviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal Statements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Previous dental experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. What was the attrition rate for the dental hygiene program for the class of 2021?

- 0%-5%
- 6%-10%
- 11%-15%
- 16%-20%
- 21% or higher

16. What was the attrition rate for the dental hygiene program for the class of 2022?

- 0%-5%
- 6%-10%
- 11%-15%
- 16%-20%
- 21% or higher

17. Please select the key factors contributing to student attrition within your dental hygiene program. (Select all that apply)

- Academic difficulties
- Personal challenges
- Financial constraints
- Other: _____

18. How does student attrition impact your dental hygiene program? (Select all that apply)

- Financial implications
- Institutional reputation
- Impact of faculty workload
- Challenges in maintaining program quality
- No significant impact

19. How often does your dental hygiene program reassess or update its admission criteria?

- Yearly
- Biennially
- Every three to five years
- Rarely or never

20. How confident are you in utilizing non-cognitive predictors to determine a student's academic success?

- Extremely confident
- Somewhat confident
- Neutral
- Somewhat not confident
- Extremely not confident

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