

**DENTAL STUDENT'S PERCEPTION OF THE ADVANCED  
EDUCATION IN GENERAL DENTISTRY  
(AEGD) PROGRAM**

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A Thesis  
Submitted to  
the Temple University Graduate Board

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In Partial Fulfillment  
of the Requirements for the Degree  
MASTER OF SCIENCE

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by  
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December 2025

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## ABSTRACT

Advanced Education in General Dentistry (AEGD) programs offer essential postdoctoral training that enhances clinical proficiency and prepares dental graduates for complex, real-world practice. Despite their potential benefits, interest and enrollment in AEGD programs remain limited, and the factors influencing students' decisions are not well understood. This study aimed to evaluate dental students' awareness, perceptions, and willingness to pursue AEGD training, while identifying the key barriers and motivators that shape these decisions.

A cross-sectional survey was administered to third- and fourth-year students at Temple University's Maurice H. Kornberg School of Dentistry from August to October 2023. The survey, distributed via SurveyMonkey, assessed demographic characteristics, awareness levels, career intentions, perceived barriers, and preferences regarding AEGD training. Statistical analyses were performed using MATLAB, including descriptive statistics, chi-square tests, and logistic regression modeling to explore associations and predictors of awareness and application likelihood.

Among the 156 respondents, only 26.5% reported being very aware of AEGD programs, while 46.2% indicated they were very unlikely to apply. Financial concerns emerged as the most frequently cited barrier (63.9%), followed by eagerness to begin working and a lack of career incentives. Conversely, advanced training opportunities—especially in implantology (81.9%) and digital dentistry (60.6%)—and financial incentives (83.1%) significantly increased students' interest in AEGD enrollment. Logistic regression

identified year of study as a significant predictor of AEGD awareness, with D4 students being more aware but less likely to apply than D3 students.

These findings underscore the need for earlier outreach, clearer communication of AEGD program benefits, and programmatic adaptations that align with student priorities. Modernizing AEGD curricula to include emerging technologies and offering financial support may help increase participation and sustain the future of postgraduate dental training.

## ACKNOWLEDGEMENTS

First and foremost, I would like to express my heartfelt appreciation to my advisor, Dr. Marisol Tellez, for her continuous support, thoughtful guidance, and invaluable mentorship throughout every stage of this thesis. I am equally grateful to Dr. Louis DiPede and Dr. Sumant Puri for their encouragement, insightful feedback, and commitment to my academic development.

I would also like to extend my deepest gratitude to my family. To my parents, thank you for your unconditional love, sacrifices, and unwavering belief in my abilities. Your encouragement has been the foundation of my success. To my siblings and friends, your support and understanding have meant the world to me, especially during the most challenging moments of this journey.

This thesis is a product of the collective support and inspiration I have received from all those around me.

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## **CHAPTER 1**

### **OVERVIEW AND RATIONALE FOR STUDY**

#### **1.1 Introduction to Dental Residency Pathways**

Dental residency programs offer structured postgraduate training for dental graduates seeking to advance their clinical expertise beyond predoctoral education. These programs encompass both general and specialty domains and serve as important avenues for skill refinement, exposure to complex patient cases, and potential pathways toward licensure in certain jurisdictions. For those pursuing specialized fields such as Periodontics or Orthodontics, specialty residencies are available. However, for general practitioners wishing to elevate their capabilities in comprehensive dental care, the two primary postgraduate options are Advanced Education in General Dentistry (AEGD) and General Practice Residency (GPR) (Dixon, et al., 2002). AEGD programs are typically school-based and emphasize advanced general dentistry and treatment planning, while GPR programs are hospital-based and integrate medical training with dental care for medically complex patients (Dhima et al., 2012; Mueldener et al., 2021).

These training pathways are vital in bridging the gap between predoctoral dental education and independent clinical practice. They enable new graduates to refine their hand skills, develop clinical judgment in complex cases, and build the confidence required to function autonomously. Furthermore, residency training can provide mentorship and structured feedback in a supportive environment, elements that are often limited in private practice (Lindemann et al., 2002).

## **1.2 Structure and Educational Objectives of AEGD Programs**

AEGD programs are generally one-year residencies, with some institutions offering an optional second year for more advanced training. These programs provide rigorous didactic and clinical instruction, emphasizing a wide range of disciplines including restorative dentistry, prosthodontics, periodontics, endodontics, oral surgery, and multidisciplinary care coordination. The overarching educational goal is to produce competent, confident, and ethical general dentists who are prepared to serve diverse patient populations (Spears et al., 2013; D'Emilio et al., 2022).

AEGD residents are typically trained to manage patients with a variety of clinical and systemic challenges, including those with disabilities, complex medical conditions, or socioeconomic barriers to care. Clinical exposure is often integrated with seminars, case conferences, literature reviews, and interdisciplinary consultations. This dual emphasis on hands-on and theoretical education equips residents to function as comprehensive care providers in a variety of settings (Spears et al., 2013; Thierer et al., 2017).

## **1.3 Benefits and Relevance of AEGD Training**

AEGD programs offer numerous benefits for early-career dentists. These include enhanced clinical decision-making, increased exposure to diverse patient populations, and opportunities to refine both foundational and advanced skills. AEGD training also provides a more structured and less financially risky transition to independent practice, allowing residents to gain experience without the overhead of private practice ownership (Kittipibul et al., 1997).

Moreover, these programs expose residents to cutting-edge technologies such as digital imaging, CAD/CAM systems, and implant planning software. The ability to integrate such technologies into clinical decision-making is increasingly valued in the modern dental marketplace. AEGD programs also support the development of soft skills such as treatment planning, case presentation, interprofessional communication, and ethical patient management (Lefever et al., 2002; Atchison et al., 2002).

#### **1.4 Trends in Enrollment and Participation**

Despite the substantial advantages, enrollment in AEGD programs has shown variable growth. In 1990, only 16 programs existed, with 292 graduates. By 2010, there were 84 programs and 779 graduates, but growth plateaued by 2020, with only a slight increase to 784 graduates from 93 programs. This stagnation in enrollment, despite an increase in available programs, raises concerns about student interest and perceived value.

Demographic trends also show shifts in AEGD participation. Female enrollment has increased steadily, and international dental graduates now represent a larger proportion of residents. Participation by underrepresented minorities has also increased, reflecting broader efforts to diversify the dental workforce. These demographic shifts highlight the importance of understanding which subgroups are most responsive to AEGD recruitment efforts. (Dhima et al., 2012; Massey et al., 2008).

#### **1.5 Factors Influencing Enrollment Decisions**

Multiple interrelated factors shape whether a student decides to pursue AEGD training. Chief among these is financial burden. Dental education in the United States is expensive, and the prospect of additional training—often with modest stipends and without

immediate income—can deter students burdened by debt. Career planning considerations also matter. Some students view immediate entry into private practice as more financially viable, while others see AEGD as a strategic steppingstone toward specialization or advanced practice. (Kunzel et al., 2010; Rosen et al., 2019; Dhima et al., 2012).

There are also perceptual and informational barriers. Misconceptions about the scope and rigor of AEGD programs can lead students to underestimate their value. Some may perceive them as remedial rather than as advanced clinical training. Others may not be aware of the variability in curriculum quality across institutions. The availability of alternative postgraduate options, such as GPR or specialty programs, can also redirect interest away from AEGD. (Bajonaid et al., 2022; Dhima et al., 2012).

## **1.6 Strategies for Addressing Barriers and Enhancing Appeal**

In light of these challenges, strategic interventions are necessary to improve AEGD program participation. One key area is financial restructuring: offering competitive stipends, tuition waivers, and targeted loan repayment could enhance program attractiveness, particularly for debt-laden graduates. In parallel, increasing transparency about program benefits and alumni outcomes through improved marketing and mentorship could dispel common misconceptions (Tabrizi et al., 2023).

Curriculum innovation is another promising avenue. Incorporating high-demand clinical skills—such as implant placement, digital workflow integration, esthetic dentistry, and sedation training—could align programs more closely with current practice expectations. Furthermore, partnerships with private practices and dental service

organizations could create clearer pipelines from residency to employment, improving the perceived return on investment (Chávez et al., 2011; Dhima et al., 2012).

### **1.7 Purpose, Objectives, and Significance of the Study**

This study was designed to explore the multifaceted factors that shape dental students' decisions regarding AEGD program enrollment. Specifically, it sought to investigate the level of awareness among students, their attitudes toward postgraduate training in general dentistry, and the barriers that may deter them from applying. These include, but are not limited to, financial limitations, lack of mentorship, career uncertainty, and misperceptions about the value of AEGD training.

The objectives of this study were fourfold: (1) to assess the extent of dental students' knowledge and understanding of AEGD programs; (2) to evaluate their willingness or hesitancy to pursue AEGD training post-graduation; (3) to identify primary barriers, including financial and educational constraints, that influence these decisions; and (4) to determine how demographic and socioeconomic characteristics affect perceptions of AEGD relevance and accessibility (Badner et al., 2010).

The significance of this study lies in its potential to inform improvements in how AEGD programs are promoted, structured, and integrated into dental education systems. Insights from the study can guide administrators, faculty, and policymakers in developing targeted strategies for outreach and program development. Furthermore, by identifying the motivations and deterrents affecting students' decisions, this research contributes to the broader discussion on how to bridge the gap between educational offerings and workforce needs in general dentistry (Handelman et al., 1995).

## 1.8 Hypotheses

To guide the investigation, three primary hypotheses were formulated:

1. Awareness Hypothesis: Dental students have limited knowledge of AEGD programs, particularly regarding their structure, benefits, and career impact. The null hypothesis states that students are adequately informed; the alternative hypothesis posits a general lack of awareness.
2. Barrier Hypothesis: Significant financial, educational, or personal barriers inhibit enrollment in AEGD programs. The null hypothesis suggests that no such barriers exist, while the alternative hypothesis asserts that these obstacles meaningfully influence decision-making.
3. Interest Hypothesis: Despite existing barriers, many students would be interested in applying to an AEGD program if the structure, training opportunities, and financial support aligned with their goals. The null hypothesis is that students have little to no interest; the alternative hypothesis posits a latent interest contingent on program characteristics.

These hypotheses were tested through quantitative analysis using survey data from third- and fourth-year dental students at Temple University's Maurice Kornberg School of Dentistry. The methodological approach allowed for both descriptive and inferential assessment of the relationships between awareness, barriers, interest, and demographic factors. The results offer a foundation for future educational reforms aimed at optimizing the design and appeal of AEGD programs nationwide.

## CHAPTER 2

### MATERIALS AND METHODS

#### 2.1 Study Design

This research employed a cross-sectional survey design to evaluate dental students' perceptions and awareness of AEGD programs. The cross-sectional methodology was selected to capture a representative snapshot of student attitudes and knowledge at a single point in time, facilitating the identification of trends and patterns across the study population.

Data were collected through an online survey administered via SurveyMonkey, a widely recognized platform for academic research. The electronic format was chosen to maximize accessibility and participation. The survey was open for responses over a three-month period, from August 2023 to October 30, 2023, providing sufficient time for students to complete the questionnaire. Prior to data collection, the study protocol received approval from the Institutional Review Board (IRB), ensuring adherence to ethical guidelines for research involving human subjects (Appendix A).

#### 2.2 Participants and Sampling Strategy

Participants were recruited using a convenience sampling strategy from the Temple University Maurice H. Kornberg School of Dentistry. The study specifically targeted third-year (D3) and fourth-year (D4) students enrolled in the Doctor of Dental Medicine (DMD) program. These cohorts were selected based on their proximity to graduation and their active engagement in career planning, making them particularly relevant for assessing interest in postgraduate training programs such as AEGD.

Given that AEGD programs are designed to supplement predoctoral education by enhancing clinical competencies and treatment planning skills, D3 and D4 students represent a population for whom these programs would be most immediately applicable. Recruitment efforts were conducted through institutional email distribution lists, online academic forums, and official university announcements. The survey link was disseminated via these channels to ensure broad access and to encourage participation from all eligible students.

### **2.3 Inclusion and Exclusion Criteria**

To ensure the appropriateness and relevance of the sample to the study objectives, specific inclusion and exclusion criteria were established.

Inclusion Criteria: Eligible participants were those currently enrolled as D3 or D4 students in the traditional DMD program at Temple University. Proficiency in English was also required, as the survey instrument was administered in English and relied on participants' ability to comprehend and respond accurately to the questions.

Exclusion Criteria: Students who had previously completed dental education outside the United States and were enrolled in advanced standing or international dentist programs were excluded. Given the substantial differences in their educational backgrounds, licensure pathways, and career decision-making processes, inclusion of these individuals could have introduced heterogeneity and confounded the interpretation of results specific to U.S.-trained dental students.

## **2.4 Sample Size Determination**

The target sample size for this study was 200 participants, determined through statistical power analysis to ensure adequate sensitivity for detecting meaningful associations and trends. This sample size was selected to balance the need for statistical rigor with the practical considerations of participant availability and potential survey non-response.

The calculation was based on an alpha level (significance threshold) of 0.05, which corresponds to a 5% risk of committing a Type I error—incorrectly rejecting a true null hypothesis. A 95% confidence interval was used to enhance the generalizability of findings to similar dental student populations. Additionally, the study was designed to achieve a statistical power of 80%, reflecting an 80% probability of detecting a true effect, should one exist, thereby minimizing the risk of Type II error.

This sample size was deemed sufficient to support a range of statistical analyses, including descriptive statistics, bivariate analyses (e.g., chi-square tests, independent t-tests), and multivariate regression modeling. These analyses enabled the exploration of relationships between students' perceptions of AEGD programs and a variety of demographic, academic, and motivational factors.

## **2.5 Survey Instrument and Data Collection**

The survey instrument was designed to capture comprehensive information regarding dental students' demographic characteristics, awareness, perceptions, and decision-making factors related to AEGD programs. The questionnaire was divided into several sections to systematically explore the key domains relevant to the study objectives.

The first section collected demographic data, including age, gender, household income, relationship status, employment status, and academic year (D3 or D4). Subsequent sections assessed participants' self-reported awareness and understanding of AEGD programs, including their perceived knowledge levels and sources of information (e.g., faculty, peers, institutional communications).

The survey further examined the factors influencing students' likelihood of applying to an AEGD program, such as career aspirations, financial obligations, academic interests, and professional goals. A set of items addressed perceived barriers to enrollment, including financial concerns, absence of clear career incentives, limited training exposure, and the availability of alternative postgraduate pathways. Additionally, students were asked to compare AEGD programs with GPR programs to assess their understanding of and preferences between these two primary postgraduate general dentistry training options.

To enhance the survey's validity and reliability, the instrument was pre-tested on a small group of dental students not included in the final analysis. Feedback from this pilot group was used to refine question wording, improve clarity, and ensure content relevance and accessibility.

Participation in the study was voluntary, and informed consent was obtained electronically before students could proceed with the survey. All responses were anonymized to protect participant confidentiality. The estimated completion time for the survey was approximately 15 to 20 minutes, allowing for thorough engagement without placing undue burden on participants.

## **2.6 Procedure**

### **2.6.1 Participant Recruitment and Initial Contact**

Participant recruitment was conducted internally at Temple University through official email communication channels. D3 and D4 students enrolled in the DMD program were the targeted population for this study, given their proximity to graduation and relevance to the research objectives.

An invitation email was distributed to all eligible students via institutional mailing lists. The email provided a concise overview of the study's purpose, emphasizing its focus on dental students' perceptions of AEGD programs. The message included key details about the voluntary nature of participation, the approximate time required to complete the survey, and assurances regarding confidentiality and ethical approval.

A direct hyperlink to the online survey was embedded within the email to facilitate ease of access. This approach ensured that participants could engage with the questionnaire efficiently and securely, using a familiar platform within their academic environment.

### **2.6.2 Informed Consent Process**

Prior to initiating the survey, all prospective participants were required to review and complete an electronic informed consent form. The consent document clearly articulated the study's purpose, objectives, and relevance, ensuring that participants had a comprehensive understanding of the research aims and their role within the study.

The form emphasized that participation was entirely voluntary and that respondents could withdraw at any time without penalty or academic consequence. It assured participants of the confidentiality of their responses, noting that no personally identifiable

information would be collected or stored. The estimated time commitment for survey completion—approximately 15 to 20 minutes—was also stated explicitly.

In addition, the consent form included information about data security and storage procedures, detailing the steps taken to protect the anonymity and integrity of participant responses. Students who agreed to participate indicated their consent by electronically signing the form before gaining access to the survey. Those who declined consent were automatically exited from the survey platform, ensuring compliance with ethical standards for human subjects research.

### 2.6.3 Survey Administration and Content

Following the informed consent process, participants were directed to the online survey, which was administered via SurveyMonkey. The survey was designed to evaluate multiple dimensions of students' awareness, perceptions, and decision-making factors related to AEGD programs.

The instrument included targeted sections covering:

#### Reasons for Considering an AEGD Program

Participants were asked about their motivations for applying to an AEGD program. Common themes included the desire for additional clinical training, interest in career advancement, and the opportunity to strengthen treatment planning skills. Some students viewed AEGD as a structured transition into private practice, while others considered it a steppingstone toward specialization.

## Barriers to AEGD Enrollment

The survey examined deterrents to enrollment, with financial concerns emerging as a primary barrier. High levels of educational debt, limited stipends, and the lack of substantial financial incentives were frequently cited. Additionally, the availability of alternative postgraduate options—such as GPR or immediate entry into the workforce—were also noted as influential in students’ decision-making.

## Factors That Could Increase Interest in AEGD

Participants were asked to identify conditions under which they would be more inclined to consider an AEGD program. Key facilitators included increased financial support (e.g., scholarships, stipends, or loan forgiveness programs), expanded clinical training in advanced procedures such as implantology and digital dentistry, and greater program visibility through mentorship or informational outreach. Many students expressed interest in enhanced exposure to technologies and procedures not emphasized in their predoctoral curriculum.

## Survey Format and Question Types

The survey employed a range of question formats to ensure comprehensive data collection. These included:

- Multiple-choice questions for demographic data and predefined program-related preferences
- Likert-scale items to measure perceptions, confidence levels, and program attractiveness on a spectrum
- Yes/No questions to assess binary awareness or intent

- Open-ended responses to capture nuanced views and contextual factors.

We validated the survey questions by adapting items from a previously published study by AlMaslamani et al, 2024 to ensure content relevance and methodological rigor.

#### 2.6.4 Survey Completion and Quality Control

All responses were automatically recorded and stored securely within SurveyMonkey. The system flagged incomplete or inconsistent submissions for quality control, and only fully completed responses were retained for final analysis. To ensure high participation, follow-up reminder emails were issued: the first reminder was sent one week after the initial invitation, and a final reminder was dispatched two weeks before the survey closed. These reminders aimed to maximize response rates and reduce potential sampling bias.

### **2.7 Data Storage and Security Measures**

All survey responses were initially stored within the secure SurveyMonkey platform during the data collection period. Upon completion of data collection, the dataset was exported and transferred to a password-protected OneDrive folder, accessible only to authorized members of the research team. To ensure data security, encryption protocols were applied during both storage and transfer processes, minimizing the risk of unauthorized access or data breaches.

The study strictly adhered to the institutional data protection and privacy guidelines set forth by Temple University. All responses were de-identified prior to analysis, and no personally identifiable information was collected or retained.

## 2.8 Statistical analysis

All statistical analyses were conducted using MATLAB R2023b (MathWorks Inc., Natick, MA, USA). The analysis focused on summarizing survey responses, examining associations between demographic factors and AEGD-related perceptions, and identifying predictors of awareness and likelihood of application using both bivariate and multivariate modeling approaches.

Descriptive Statistics: Descriptive statistics were used to characterize the study population and summarize responses to key survey questions. Continuous variables such as age were reported using mean, standard deviation, and range. For categorical variables (e.g., gender, year of study, employment status, income), frequencies and proportions were calculated and presented in tabular format. Age was further binned into four categories: <25, 26–30, 31–35, and >35 years for subgroup analyses.

Bivariate Analysis: Chi-square ( $\chi^2$ ) tests were used to evaluate associations between categorical variables, including demographic characteristics (e.g., age, gender, income, year of study) and binary outcomes such as AEGD awareness and likelihood of applying. Cross-tabulations were generated for all pairwise variable combinations, and  $\chi^2$  statistics and p-values were saved for subsequent analysis. In addition, odds ratios (ORs) and 95% confidence intervals (CIs) were calculated from binary logistic regression models for each demographic predictor against the outcomes of interest.

Logistic Regression Analysis: Binary logistic regression models were constructed to assess the association between individual demographic predictors and two primary binary outcomes: (1) high AEGD program awareness (defined as selecting “Very aware”), and

(2) likelihood of applying to an AEGD program (defined as selecting “Very likely” or “Somewhat likely”). Each model provided odds ratios, 95% CIs, and corresponding p-values. Predictors included gender, age group, income, employment, relationship status, and year of study.

Multiple Logistic Regression: To assess the independent effect of each demographic factor on awareness and likelihood to apply, a multivariable logistic regression model was developed incorporating all key predictors. Likelihood ratio tests (LRTs) were used to evaluate the contribution of each variable to model fit. Model performance metrics included deviance, Akaike Information Criterion (AIC), and chi-square p-values. Variables with significant contributions were flagged and interpreted.

Correlation Matrix: Chi-square-based correlation matrices were constructed across 20 categorical variables, including demographic traits, awareness levels, reported barriers, and training preferences. Pairwise association strengths were quantified using  $\chi^2$  statistics and p-values, and results were saved in tabular and matrix formats for exploratory visualization and hypothesis generation.

Data Cleaning and Quality Assurance: Prior to analysis, survey responses were checked for completeness, and missing or inconsistent values were excluded. Variable recoding and binning (e.g., age group creation) were performed using structured preprocessing functions to ensure standardization and reproducibility across analyses. All analyses adhered to a significance threshold of  $p < 0.05$ .

## CHAPTER 3

### RESULTS

#### 3.1 Sociodemographic Profile of Study Population

A complete summary of student responses, organized by question and domain, is provided in Appendix B: Summary of Raw Data Collection. A total of 156 dental students participated in the study. As shown in Table 1, the mean age of respondents was 28.83 years ( $SD = 6.40$ ), with ages ranging from 19 to 66 years. The majority of participants were between 26–30 years old (39.74%), followed by those under 25 years (33.97%), 31–35 years (14.74%), and over 35 years (11.54%).

Regarding gender, most participants identified as female (57.05%), while 41.67% identified as male, and 1.28% identified as other or non-binary.

Household income varied, with nearly half (48.72%) reporting annual incomes less than \$25,000. Approximately one-third (33.33%) reported incomes exceeding \$100,000. Other income brackets were less represented, with 6.41% earning \$25,000–\$50,000, 7.05% earning \$50,000–\$75,000, and 4.49% earning \$75,000–\$100,000.

Employment status showed that a majority (81.29%) were full-time students not employed. A smaller proportion reported working part-time (7.74%) or full-time (10.97%) alongside their studies.

In terms of relationship status, 43.23% reported being single but in a relationship, 32.26% were single and not partnered, 22.58% were married, and 1.94% were divorced.

Participants were primarily in their final years of dental school, with 55.17% in their fourth year (D4) and 44.83% in their third year (D3).

Table 1. Sociodemographic data

| Variable                                   | Category                    | n   | %     |
|--|-----------------------------|-----|-------|
| Age (years)                                | <25                         | 53  | 33.97 |
|  | 26–30                       | 62  | 39.74 |
|  | 31–35                       | 23  | 14.74 |
|  | >35                         | 18  | 11.54 |
|  | Total                       | 156 | 100   |
| Mean = 28.83, SD = 6.40, Min–Max = 19 – 66 |                             |     |       |
| Gender                                     | Female                      | 89  | 57.05 |
|  | Male                        | 65  | 41.67 |
|  | Other or non-binary         | 2   | 1.28  |
|  | Total                       | 156 | 100   |
| Income                                     | < \$25,000                  | 76  | 48.72 |
|  | \$25,000 to \$50,000        | 10  | 6.41  |
|  | \$50,000 to \$75,000        | 11  | 7.05  |
|  | \$75,000 to \$100,000       | 7   | 4.49  |
|  | > \$100,000                 | 52  | 33.33 |
|  | Total                       | 156 | 100   |
| Employment                                 | Employed, working full-time | 17  | 10.97 |
|  | Employed, working part-time | 12  | 7.74  |
|  | Student only                | 126 | 81.29 |
|  | Total                       | 155 | 100   |
| Relationship                               | Divorced                    | 3   | 1.94  |
|  | Married                     | 35  | 22.58 |
|  | Single, not partnered       | 50  | 32.26 |
|  | single, in a relationship   | 67  | 43.23 |
|  | Total                       | 155 | 100   |
| Year Study                                 | D3                          | 65  | 44.83 |
|  | D4                          | 80  | 55.17 |
|  | Total                       | 145 | 100   |

### 3.2 Awareness and Likelihood of Applying to an AEGD Program

Participants were asked about their awareness of and likelihood of applying to an AEGD program (Table 2). Among the 156 respondents, nearly half (46.15%) reported being *very unlikely* to apply. Additionally, 21.15% were *unsure*, while smaller proportions indicated they were *somewhat unlikely* (15.38%) or *somewhat likely* (12.82%) to apply. Only 4.49% of respondents reported being *very likely* to pursue an AEGD program.

In terms of awareness (n = 155), responses varied. While 26.45% considered themselves *very aware* of AEGD programs, 25.81% were *somewhat not aware*, 21.29% were *unsure*, and 18.06% reported being *not very aware*. A small proportion (8.39%) indicated they were *very unaware* of such programs.

Table 2. Awareness and likelihood of applying for an AEGD program

| Variable   | n                  | %   |       |
|------------|--------------------|-----|-------|
| Likelihood | Somewhat likely    | 20  | 12.82 |
|            | Somewhat unlikely  | 24  | 15.38 |
|            | Unsure             | 33  | 21.15 |
|            | Very Unlikely      | 72  | 46.15 |
|            | Very likely        | 7   | 4.49  |
|            | Total              | 156 | 100   |
| Awareness  | Not very aware     | 28  | 18.06 |
|            | Somewhat not aware | 40  | 25.81 |
|            | Unsure             | 33  | 21.29 |
|            | Very Unaware       | 13  | 8.39  |
|            | Very aware         | 41  | 26.45 |
|            | Total              | 155 | 100   |

### 3.3 Awareness, Perceived Financial Impact, and Program Priorities

Participants were asked about their understanding of AEGD programs in comparison to GPR programs, as well as their perceptions of financial impact and program priorities. As shown in Table 3, the majority of respondents (68.39%) reported having knowledge of the differences between AEGD and GPR programs, while 31.61% indicated they did not.

When asked about the perceived impact of AEGD graduation on future income, responses were mixed. Approximately 37.82% believed that completing an AEGD program would positively influence their income, while 39.74% were unsure or neutral. A smaller proportion (22.44%) believed it would have no impact.

In terms of priorities when considering an AEGD program, most participants (76.28%) identified *clinical experience* as the most important factor, whereas 23.72% prioritized a *competitive salary*.

Table 3. Respondent awareness, perceived financial impact, and priorities regarding AEGD programs.

| Variable                            | n                   | %   |       |
|-------------------------------------|---------------------|-----|-------|
| Knowledge of AEGD vs. GPR           | No                  | 49  | 31.61 |
|                                     | Yes                 | 106 | 68.39 |
|                                     | Total               | 155 | 100   |
| Impact of AEGD Graduation on Income | No                  | 35  | 22.44 |
|                                     | Unsure/Neutral      | 62  | 39.74 |
|                                     | Yes                 | 59  | 37.82 |
|                                     | Total               | 156 | 100   |
| Important Factor in an AEGD         | Clinical experience | 119 | 76.28 |
|                                     | Competitive salary  | 37  | 23.72 |
|                                     | Total               | 156 | 100   |

### 3.4 Perceived Barriers to Pursuing an AEGD Program

Participants were asked to indicate whether they perceived any barriers to pursuing an AEGD program. As shown in Table 4, the responses were nearly evenly divided: 51.92% of respondents reported no barriers, while 48.08% indicated they did perceive barriers.

When examining specific factors, financial concerns were among the most cited barriers, with 34.84% of participants *strongly agreeing* and 29.03% *somewhat agreeing* that finances were a concern. Only 12.91% disagreed to any extent, and 23.23% remained neutral.

Lack of career incentives was another commonly reported issue, with 36.84% of respondents agreeing that it represented a barrier (25.00% somewhat agree, 11.84% strongly agree), while a larger proportion (34.21%) were neutral.

External pressures were more likely to be rejected as barriers: 45.09% of respondents *disagreed* (28.10% strongly, 16.99% somewhat), while only 24.84% agreed and 30.07% were neutral.

Availability of other training options (e.g., GPR, private practice) was cited as a barrier by 45.10% of participants (27.45% somewhat agree, 17.65% strongly agree), while a third (32.03%) were neutral.

Interestingly, a majority expressed eagerness to enter the workforce as a barrier, with 41.83% somewhat agreeing and 31.37% strongly agreeing that this influenced their decision-making.

Student responsibilities also emerged as a moderate barrier, with 28.29% somewhat agreeing and 18.42% strongly agreeing. However, over one-third (34.21%) of participants were neutral on this factor.

Finally, 10.66% of participants strongly agreed and 8.20% somewhat agreed with “Other” unspecified barriers, though 67.21% were neutral or unsure, suggesting less clarity around additional concerns.

Table 4. Barriers to pursuing AEGD.

| Variable                       | No                | Yes               |                   |                |                | Total         |
|--------------------------------|-------------------|-------------------|-------------------|----------------|----------------|---------------|
| Barriers to Pursuing AEGD      | 81<br>(51.92%)    | 75<br>(48.08%)    |                   |                |                | 156<br>(100%) |
|                                | Strongly disagree | Somewhat Disagree | Neutral or Unsure | Somewhat agree | Strongly Agree |               |
| Financial Concerns             | 9<br>(5.81%)      | 11<br>(7.10%)     | 36<br>(23.23%)    | 45<br>(29.03%) | 54<br>(34.84%) | 155<br>(100%) |
| Lack of Career Incentives      | 20<br>(13.16%)    | 24<br>(15.79%)    | 52<br>(34.21%)    | 38<br>(25.00%) | 18<br>(11.84%) | 152<br>(100%) |
| External Pressures             | 43<br>(28.10%)    | 26<br>(16.99%)    | 46<br>(30.07%)    | 28<br>(18.30%) | 10<br>(6.54%)  | 153<br>(100%) |
| Availability of Other Training | 18<br>(11.76%)    | 17<br>(11.11%)    | 49<br>(32.03%)    | 42<br>(27.45%) | 27<br>(17.65%) | 153<br>(100%) |
| Eager to Start Career          | 8<br>(5.23%)      | 6<br>(3.92%)      | 27<br>(17.65%)    | 64<br>(41.83%) | 48<br>(31.37%) | 153<br>(100%) |
| Student Responsibilities       | 14<br>(9.21%)     | 15<br>(9.87%)     | 52<br>(34.21%)    | 43<br>(28.29%) | 28<br>(18.42%) | 152<br>(100%) |
| Other                          | 13<br>(10.66%)    | 4<br>(3.28%)      | 82<br>(67.21%)    | 10<br>(8.20%)  | 13<br>(10.66%) | 122<br>(100%) |

### 3.5 Impact of Specific Training Opportunities on AEGD Program Interest

Participants were asked how various training opportunities would influence their likelihood of applying to an AEGD program in the future. As shown in Table 5, responses varied by training category.

Digital Dentistry training was seen as a positive influence for most respondents: 38.06% stated it would make them *a little more likely* to apply, and 22.58% said it would make them *much more likely* to apply. Only 9.04% reported decreased interest (5.81% *much less likely*, 3.23% *a little less likely*), while 30.32% indicated *no change*.

Dental Public Health (DPH) Residency opportunities had a less positive influence. The majority of students (39.35%) indicated *no change*, while 33.55% reported being *much less likely* to apply to an AEGD program if it included DPH training. Only 14.2% (10.97% *a little more likely*, 3.23% *much more likely*) viewed this training positively.

Implant Placement and Restorative Training emerged as a strong motivator: nearly half (49.68%) said it would make them *much more likely* to apply, and 32.26% said *a little more likely*. Only 5.17% reported reduced interest.

Financial Incentives were also a powerful factor. Half (50.00%) of respondents stated they would be *much more likely* to apply if incentives were offered, and an additional 33.12% said *a little more likely*. Only 3.25% were *much less likely*, and no respondents chose *a little less likely*.

Table 5. Training opportunities influence the likelihood of applying to an AEGD program

| Answer Choices                         | Much less likely | A little less likely | No change      | A little more likely | Much more likely | Total         |
|--|------------------|----------------------|----------------|----------------------|------------------|---------------|
| Digital Dentistry                      | 9<br>(5.81%)     | 5<br>(3.23%)         | 47<br>(30.32%) | 59<br>(38.06%)       | 35<br>(22.58%)   | 155<br>(100%) |
| Dental Public Health (DPH) Residency   | 52<br>(33.55%)   | 20<br>(12.90%)       | 61<br>(39.35%) | 17<br>(10.97%)       | 5<br>(3.23%)     | 155<br>(100%) |
| Implant Placement & Restoring Implants | 5<br>(3.23%)     | 3<br>(1.94%)         | 20<br>(12.90%) | 50<br>(32.26%)       | 77<br>(49.68%)   | 155<br>(100%) |
| Financial Incentives                   | 5<br>(3.25%)     | 0<br>(0.0%)          | 21<br>(13.64%) | 51<br>(33.12%)       | 77<br>(50.00%)   | 154<br>(100%) |

### 3.6 Sociodemographic Predictors of Awareness of AEGD Programs

To assess the relationship between awareness of AEGD programs and various sociodemographic factors, logistic regression analyses were conducted, and the results are summarized in Table 6. Odds ratios (OR), 95% confidence intervals (CI), and chi-square p-values were reported for each predictor.

Gender was not significantly associated with AEGD awareness ( $p = 0.699$ ). Compared to females, males had slightly higher odds of being aware of AEGD programs (OR = 1.15, 95% CI: 0.55–2.39), and participants identifying as other or non-binary had higher odds (OR = 3.00), though the wide confidence interval (0.18–51.15) suggests imprecision due to small sample size.

Age group was not significantly associated with awareness ( $p = 0.0878$ ), though trends suggested increasing awareness with age. Participants aged 31–35 (OR = 3.15, 95%

CI: 0.81–12.30) and >35 years (OR = 3.94, 95% CI: 0.98–15.74) showed higher odds of awareness compared to those under 25.

Income level did not significantly influence awareness ( $p = 0.652$ ). Compared to those earning less than \$25,000, other income groups showed variable, non-significant associations.

Employment status was significantly associated with awareness ( $p = 0.000807$ ). Students who were not employed had significantly lower odds of being aware of AEGD programs (OR = 0.16, 95% CI: 0.05–0.47) compared to those working full-time.

Relationship status also showed a significant association ( $p = 0.0412$ ). Those who were single and in a relationship had lower odds of awareness (OR = 0.40, 95% CI: 0.03–4.90) compared to divorced participants, although the wide CI reflects limited statistical precision.

Year of study was significantly associated with AEGD awareness ( $p = 0.0058$ ). D4 students were more likely to be aware than D3 students (OR = 3.17, 95% CI: 1.35–7.42).

Table 6. Association between the awareness of AEGD program and sociodemographic variables.

| Predictor                   | Sample size | Odds ratio | 95% Confidence interval | Chi <sup>2</sup> p-value |
|-----------------------------|-------------|------------|-------------------------|--------------------------|
| Gender                      |             |            |                         | 0.699                    |
| Female                      | 88          |            | Reference               |                          |
| Male                        | 65          | 1.15       | 0.55 - 2.39             |                          |
| Other or non-binary         | 2           | 3.00       | 0.18 - 51.15            |                          |
| Age                         |             |            |                         | 0.0878                   |
| <25                         | 53          |            | Reference               |                          |
| 26–30                       | 85          | 1.51       | 0.46 – 4.99             |                          |
| 31–35                       | 24          | 3.15       | 0.81 – 12.30            |                          |
| >35                         | 21          | 3.94       | 0.98 - 15.74            |                          |
| Income                      |             |            |                         | 0.652                    |
| Less than \$25,000          | 76          |            | Reference               |                          |
| \$25,000 to \$50,000        | 10          | 0.75       | 0.14 - 3.90             |                          |
| \$50,000 to \$75,000        | 11          | 0.67       | 0.13 - 3.41             |                          |
| \$75,000 to \$100,000       | 7           | 0.50       | 0.06 - 4.50             |                          |
| Greater than \$100,000      | 51          | 1.50       | 0.68 - 3.29             |                          |
| Employment                  |             |            |                         | 0.000807<br>*            |
| Employed, working full-time | 16          |            | Reference               |                          |
| Employed, working part-time | 12          | 0.43       | 0.09 – 2.00             |                          |
| Student only                | 126         | 0.16       | 0.05 – 0.47             |                          |
| Relationship                |             |            |                         | 0.0412*                  |
| Divorced                    | 3           |            | Reference               |                          |
| Married                     | 35          | 1.50       | 0.12 - 18.50            |                          |
| Single, not partnered       | 50          | 0.70       | 0.06 - 8.58             |                          |
| single, in a relationship   | 66          | 0.40       | 0.03 - 4.90             |                          |
| Year Study                  |             |            |                         | 0.0058*                  |
| D3                          | 65          |            | Reference               |                          |
| D4                          | 80          | 3.17       | 1.35 - 7.42             |                          |

### 3.7 Sociodemographic Predictors of Likelihood to Apply to an AEGD Program

Logistic regression was used to assess the association between sociodemographic characteristics and students' reported likelihood of applying to an AEGD program. The results are summarized in Table 7.

Gender was not significantly associated with likelihood to apply ( $p = 0.2635$ ). Males had lower odds than females (OR = 0.51, 95% CI: 0.21–1.26), while the odds ratio for participants identifying as non-binary was 0.00, reflecting a very small subgroup.

Age was significantly associated with likelihood to apply ( $p = 0.0394^*$ ). Compared to students under 25, those aged 26–30 had significantly lower odds (OR = 0.35, 95% CI: 0.13–0.96), as did those aged 31–35 (OR = 0.16, 95% CI: 0.03–0.86). Participants over 35 also showed reduced odds (OR = 0.19), though the confidence interval (0.03–1.01) suggests borderline significance.

Income was not significantly associated with likelihood of applying ( $p = 0.5524$ ). Odds ratios for all income categories showed wide confidence intervals and no consistent trends. Employment status showed no significant association ( $p = 0.5536$ ). Students not employed had slightly higher odds of applying (OR = 1.65, 95% CI: 0.35–7.83), but this was not statistically significant.

Relationship status also had no significant effect on application likelihood ( $p = 0.5799$ ). Both single respondents and those in relationships had higher odds ratios compared to married individuals, but with wide, non-significant confidence intervals. Year of study was significantly associated with likelihood of applying ( $p = 0.0057^*$ ). Compared

to D3 students, D4 students had significantly lower odds of intending to apply to an AEGD program (OR = 0.29, 95% CI: 0.12–0.73).

These findings indicate that younger students and those earlier in their dental education (D3) were significantly more likely to consider applying to an AEGD program, while other demographic variables were not significant predictors.

Table 7. Association between the likelihood of applying to an AEGD program and sociodemographic variables.

| Predictor                   | Sample size | Odds ratio | 95% Confidence interval | Chi <sup>2</sup> p-value |
|-----------------------------|-------------|------------|-------------------------|--------------------------|
| Gender                      |             |            |                         | 0.2635                   |
| Female                      | 88          |            | Reference               |                          |
| Male                        | 65          | 0.51       | 0.21 - 1.26             |                          |
| Other or non-binary         | 2           | 0.00       | 0.00 - Inf              |                          |
| Age                         |             |            |                         | 0.0394*                  |
| <25                         | 25          |            | Reference               |                          |
| 26–30                       | 85          | 0.35       | 0.13 - 0.96             |                          |
| 31–35                       | 24          | 0.16       | 0.03 - 0.86             |                          |
| >35                         | 21          | 0.19       | 0.03 - 1.01             |                          |
| Income                      |             |            |                         | 0.5524                   |
| Less than \$25,000          | 76          |            | Reference               |                          |
| \$25,000 to \$50,000        | 10          | 1.02       | 0.19 - 5.36             |                          |
| \$50,000 to \$75,000        | 11          | 1.52       | 0.36 - 6.53             |                          |
| \$75,000 to \$100,000       | 7           | 0.00       | 0.00 - Inf              |                          |
| Greater than \$100,000      | 51          | 0.65       | 0.24 - 1.73             |                          |
| Employment                  |             |            |                         | 0.5536                   |
| Employed, working full-time | 16          |            | Reference               | 0.5536                   |
| Employed, working part-time | 12          | 0.64       | 0.05 - 8.13             |                          |
| Student only                | 126         | 1.65       | 0.35 - 7.83             |                          |
| Relationship                |             |            |                         | 0.5799                   |
| Married                     | 35          |            | Reference               |                          |
| Single, not partnered       | 50          | 1.94       | 0.55 - 6.84             |                          |
| single, in a relationship   | 66          | 1.90       | 0.56 - 6.41             |                          |
| Divorced                    | 3           | 0.00       | 0.00 - Inf              |                          |
| Year Study                  |             |            |                         | 0.0057*                  |
| D3                          | 65          |            | Reference               |                          |
| D4                          | 80          | 0.29       | 0.12 - 0.73             |                          |

### 3.8 Multivariate Predictors of AEGD Program Awareness

A multiple logistic regression model was used to evaluate which sociodemographic variables were independently associated with awareness of AEGD programs. The model included gender, age range, income, employment status, relationship status, and year of study. Full model statistics are presented in Table 8. Among all variables, only year of study showed a statistically significant association with AEGD awareness ( $p = 0.0286$ ). The likelihood ratio test (LRT) for year of study yielded a deviance of 142.8 and an AIC of 172.8, indicating improved model fit compared to the null model. Other variables—including gender ( $p = 0.737$ ), age range ( $p = 0.921$ ), income ( $p = 0.375$ ), employment ( $p = 0.0822$ ), and relationship status ( $p = 0.218$ )—did not show statistically significant contributions to the model, suggesting these factors were not independently associated with students' awareness of AEGD programs in the multivariate context. These findings emphasize that being in a later year of dental training (e.g., D4) is the strongest independent predictor of AEGD program awareness among surveyed students.

Table 8. Multiple logistic regression model: Awareness

| Model:<br>Awareness ~ Gender + Age_range + Income + Employment + Relationship<br>+ YearStudy |    |          |       |      |          |
|--|----|----------|-------|------|----------|
|  | df | Deviance | AIC   | LRT  | Pr(>Chi) |
| <none>   |    | 159.2    | 161.2 |      |          |
| Gender   | 2  | 138.6    | 166.6 | 0.61 | 0.737    |
| Age_range  | 3  | 138.5    | 164.5 | 0.49 | 0.921    |
| Income'  | 4  | 142.2    | 166.2 | 4.24 | 0.375    |
| Employment   | 2  | 143.0    | 171.0 | 5.00 | 0.0822   |
| Relationship   | 3  | 142.4    | 168.4 | 4.44 | 0.218    |
| YearStudy  | 1  | 142.8    | 172.8 | 4.79 | 0.0286*  |

df – Degrees of Freedom, AIC – Akaike Information Criterion, LRT – Likelihood Ratio Test, Pr(>Chi) – p-value from Chi-Square Test.

### 3.9 Multivariate Predictors of Likelihood to Apply to an AEGD Program

A multiple logistic regression model was used to evaluate whether sociodemographic variables were independently associated with the likelihood of applying to an AEGD program. The model included gender, age range, income, employment status, relationship status, and year of study. As shown in Table 9, none of the included predictors reached statistical significance at the 0.05 threshold.

Gender was not significantly associated with likelihood to apply ( $p = 0.272$ ), nor was age range ( $p = 0.558$ ). Income also showed no significant effect on the outcome ( $p = 0.512$ ), and employment status similarly did not contribute significantly to the model ( $p = 0.530$ ). Relationship status had no measurable influence ( $p = 0.919$ ). Year of study approached statistical significance ( $p = 0.0925$ ), suggesting a potential trend in which students in earlier years (e.g., D3) may be more inclined to consider applying to AEGD programs compared to those in later years, although this effect did not meet conventional thresholds for significance.

Table 9. Multiple logistic regression model: Likelihood

| Model:<br>Likelihood ~ Gender + Age_range + Income + Employment + Relationship +<br>YearStudy |    |          |       |      |          |
|---|----|----------|-------|------|----------|
|   | df | Deviance | AIC   | LRT  | Pr(>Chi) |
| <none>  |    | 135.6    | 137.6 |      |          |
| Gender  | 2  | 120.5    | 148.5 | 2.61 | 0.272    |
| Age_range   | 3  | 119.9    | 145.9 | 2.07 | 0.558    |
| Income  | 4  | 121.2    | 145.2 | 3.28 | 0.512    |
| Employment  | 2  | 119.1    | 147.1 | 1.27 | 0.53     |
| Relationship  | 3  | 118.4    | 144.4 | 0.50 | 0.919    |
| YearStudy   | 1  | 120.7    | 150.7 | 2.83 | 0.0925   |

### 3.10 Bivariate Associations Across All Variables

Chi-square tests were conducted to examine bivariate associations among all sociodemographic variables, awareness, likelihood to apply, perceived barriers, and program priorities. The corresponding p-values are presented in Table 10.

Several significant associations were observed. Employment showed strong associations with multiple variables, including income ( $p < 0.001$ ), relationship status ( $p = 0.017$ ), awareness ( $p = 0.005$ ), and several barrier-related variables such as external pressures ( $p = 0.0008$ ) and training availability ( $p = 0.0025$ ).

Year of study was significantly associated with awareness ( $p = 0.0371$ ), likelihood to apply ( $p = 0.0030$ ), and relationship status ( $p = 0.0385$ ). Relationship status was also associated with gender ( $p = 0.0126$ ), income ( $p < 0.001$ ), and employment ( $p = 0.0063$ ).

In terms of specific perceived barriers, external pressures and training availability were significantly associated with one another ( $p < 0.001$ ), as well as with other domains such as financial concerns and career incentives. Notably, student responsibilities were significantly associated with awareness ( $p = 0.0073$ ), year of study ( $p = 0.0004$ ), and multiple other barrier items (e.g., external pressures  $p = 0.0000$ ).

Regarding training priorities, digital dentistry training was associated with gender ( $p = 0.0298$ ) and relationship status ( $p = 0.0120$ ), while financial incentives were significantly related to career incentives ( $p = 0.0155$ ), career start pressure ( $p = 0.0192$ ), and other key barriers and motivators.



## CHAPTER 4

### DISCUSSION

This study provides a comprehensive assessment of dental students' awareness, perceived value, and interest in pursuing AEGD programs, alongside an evaluation of the sociodemographic predictors and barriers that may influence their decision-making. Despite the growing emphasis on postgraduate training and the expansion of AEGD programs across the United States, our findings reveal limited awareness and low intent to apply among a large proportion of the surveyed population.

#### **4.1 Awareness and Likelihood to Apply**

A central finding of this study is the overall low likelihood of applying to an AEGD program, with nearly half of respondents reporting that they were “very unlikely” to apply, and only a minority (4.49%) indicating they were “very likely.” This reluctance is mirrored by a wide range in awareness levels, with more than 45% of students reporting that they were not very aware or only somewhat aware of AEGD programs. These patterns underscore the need for improved visibility and structured information dissemination about AEGD pathways within dental school curricula and advising systems.

Although the majority of respondents reported knowing the difference between AEGD and GPR programs, nearly 40% remained unsure about the potential income impact of completing an AEGD. This uncertainty, combined with an emphasis on clinical experience over financial benefits as a motivating factor, suggests that clearer messaging about the long-term value of AEGD training—both educational and financial—is warranted.

## **4.2 Barriers to Pursuing AEGD**

Financial concerns emerged as the most frequently cited barrier to pursuing an AEGD program, with over 60% of students either strongly or somewhat agreeing that cost-related issues would deter them. Other commonly identified barriers included lack of clear career incentives and a desire to quickly enter the workforce.

These findings validate the Barrier Hypothesis, which stated that significant financial, educational, or personal barriers inhibit enrollment in AEGD programs. The data strongly support the alternative hypothesis, as multiple perceived deterrents—particularly financial burden and opportunity cost—were frequently endorsed by respondents.

Interestingly, traditional barriers such as external pressures (e.g., family or peer influence) were largely rejected by most students, while internal motivators—such as eagerness to begin working—were more salient. This indicates that personal economic and career timing considerations may outweigh social or academic pressures in determining AEGD participation.

## **4.3 Influence of Training Opportunities**

Certain program elements were found to significantly influence students' interest in AEGD. Specifically, implant training and financial incentives were reported as strong motivators, with 83% and 83.1% of students, respectively, stating that such components would increase their likelihood of applying. Digital dentistry also had a positive effect, though to a lesser degree. Conversely, training in DPH had a neutral or even negative influence on application interest.

These findings provide direct support for the Interest Hypothesis, which proposed that many students would be more interested in AEGD enrollment if program structure, training content, and financial support aligned with their goals. The data demonstrates that latent interest in AEGD programs does exist and can be activated through targeted curricular and structural changes.

These insights are critical for AEGD program directors and institutions seeking to improve enrollment: offering advanced clinical skills, modern technologies, and financial support may significantly enhance program appeal.

#### **4.4 Predictors of Awareness and Application Likelihood**

Bivariate and multivariate analyses identified year of study as a key determinant of both awareness and likelihood of applying to an AEGD program. Specifically, D4 students were significantly more likely to report awareness but significantly less likely to express intent to apply compared to D3 students. This paradox suggests that increased exposure to AEGD information may occur late in training—potentially too late to influence decision-making—highlighting the need for earlier engagement.

Employment status and relationship status were also associated with awareness, with full-time workers and married or divorced students showing greater awareness. This may reflect differences in life stage, experience, and career planning behaviors. However, in multivariate models, only year of study remained a statistically significant predictor, underscoring its central role.

In contrast, the likelihood of applying to an AEGD program was significantly associated with age in univariate models, with younger students more likely to consider

applying. However, no predictors reached statistical significance in the multivariate model, although year of study approached significance ( $p = 0.0925$ ). This suggests that while certain sociodemographic trends exist, they may not act independently in shaping application intent.

#### **4.5 Interactions Across Variables**

Bivariate associations from chi-square tests revealed additional insights. Employment was strongly associated with both income and awareness, and also correlated with several barrier variables including external pressure and training availability. Year of study remained consistently associated with awareness, likelihood to apply, and relationship status.

Several barriers were interrelated. For example, perceptions of external pressures were significantly associated with career-related and training-related concerns. Likewise, students reporting responsibility-related barriers (e.g., academic or family obligations) were more likely to report lower awareness, further reinforcing the complex web of factors influencing postgraduate decisions.

Among motivators, training in digital dentistry was associated with gender and relationship status, and financial incentives were linked with perceived barriers like limited career incentives and desire for early career entry. These associations suggest that the perceived structure and content of AEGD programs, rather than purely demographic variables, play a significant role in shaping student preferences.

#### **4.6 Implications and Future Directions**

This study highlights a critical opportunity for dental schools, professional organizations, and residency directors to enhance outreach, clarify the academic and financial benefits of AEGD programs, and adapt training structures to better align with student priorities. Early intervention—particularly targeting D3 students—may be key to improving application rates. Further, designing AEGD curricula that emphasize high-impact motivators such as implant placement, digital dentistry, and financial support may enhance their appeal to a broader cohort of students.

Additionally, the findings support the development of educational policies and outreach strategies that align with the three tested hypotheses. Future studies may expand on these results by incorporating longitudinal follow-up, examining application and enrollment outcomes after intervention, and evaluating whether targeted curricular changes can improve AEGD program visibility and participation over time.

## CHAPTER 5

### CONCLUSION

This study provides novel insights into dental students' awareness of, interest in, and barriers to pursuing AEGD programs. Despite the clinical value and professional opportunities associated with postgraduate dental education, our findings reveal low levels of intent to apply, accompanied by a general lack of awareness—particularly among younger and earlier-year students. While awareness was significantly higher among D4 students, this did not translate into greater intent to apply, suggesting that AEGD outreach efforts may be occurring too late in the educational timeline to meaningfully influence career planning.

Financial considerations emerged as a dominant barrier, with students expressing concern about the economic feasibility of participating in AEGD programs, particularly in the context of high educational debt and delayed earnings. Additionally, eagerness to enter the workforce and the perceived lack of career advancement incentives were influential in students' decisions not to pursue further training. These findings reflect broader structural challenges within the profession and emphasize the importance of institutional and policy-level solutions to support postgraduate pathways.

Program design features were found to strongly influence application likelihood. Training in implant placement, digital dentistry, and the provision of financial incentives were among the most compelling motivators. In contrast, training elements such as Dental Public Health were viewed as less relevant to students' perceived career goals, indicating a potential mismatch between program offerings and student priorities.

Sociodemographic predictors of awareness and application intent were limited, though year of study consistently emerged as a significant factor in both bivariate and multivariate models. Employment and relationship status also showed relevant associations, but their independent effects diminished when controlling for other variables. These results suggest that structural and curricular factors—rather than demographic characteristics—may hold greater explanatory power in understanding students’ AEGD-related decisions.

In summary, improving the visibility, timing, and structure of AEGD programs—particularly by targeting students earlier in their training and aligning program content with clinically and financially relevant goals—may enhance participation rates. Future efforts should prioritize communication strategies, academic advising, and curriculum integration to ensure that dental students are well-informed and supported in exploring all available postdoctoral training options.

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## APPENDIX A

### INSTITUTION REVIEW BOARD HIPAA WAIVER & APPROVAL

(Protocol Number: 31540)



Research Integrity & Compliance  
Student Faculty Center  
3340 N. Broad Street, Suite 427  
Philadelphia PA 19140

Institutional Review Board  
Phone: (215) 707-3390  
Fax: (215) 204-4609  
e-mail: [irb@temple.edu](mailto:irb@temple.edu)



#### Amendment Approval

Date: 20-Dec-2024

Protocol Number: 31540  
PI: LOUIS DIPEDE  
Review Date: 20-Dec-2024  
Committee: A1  
Risk: Minimal risk  
Sponsor: NO EXTERNAL SPONSOR  
Project Title: Dental Students' Perception of the Advanced Education in General Dentistry Program

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On 20-Dec-2024, the IRB approved the amendments requested in Submission # **31540-0004**. A summary of the approved Amendments is below:

Change the PI to Dr. Louis DiPede and updating the protocol and consent to include the potential for compensation for participating.

*If you amended the consent form for a non-Exempt study, you can access your IRB-approved, stamped consent document or consent script through ERA. Open the "Attachments" tab within the approved submission ( # **31540-0004**) and open the stamped documents by clicking the View link next to each document. The stamped documents are labeled as such. Copies of the IRB approved stamped consent document or consent script must be used in obtaining consent.*

Please contact the IRB at (215) 707-3390 if you have any questions.

If you would like to tell us how we are doing, please complete this 5-minute Satisfaction Survey:  
<https://forms.gle/9EcgYGDEEANvMw37>



Approval for a Project Involving Human Subjects Research that is Approved as Exempt

Date: 07-May-2024

Protocol Number: 31540  
PI: CHUKWUEBUKA E OGWO  
Review Type: EXEMPT  
Approved On: 05-Apr-2024  
Risk: Minimal risk  
Committee: A1  
Sponsor: NO EXTERNAL SPONSOR  
Project Title: Dental Students' Perception of the Advanced Education in General Dentistry Program

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The IRB approved the protocol 31540.

The study was approved under Exempt review. The IRB determined that the research **does not require a continuing review**, consequently there is not an IRB approval period.

As this research was approved as Exempt, the IRB will not stamp the consent or assent form(s).

**Note that all applicable Institutional approvals must also be secured before study implementation.** These approvals include, but are not limited to, Medical Radiation Committee ("MRC"); Radiation Safety Committee ("RSC"); Institutional Biosafety Committee ("IBC"); and Temple University Survey Coordinating Committee ("TUSCC"). Please visit these Committees' websites for further information.

**Finally, in conducting this research, you are obligated to submit the following:**

- **Amendments** - Any changes to the research that may change the Exempt status of this study must be reviewed and approved by the IRB prior to implementation. Examples of such changes are: including new sensitive questions to a survey or interview, changing data collection such that de-identified data will now be identifiable, including an intervention in the methods, changing variables to be collected from medical charts, decreasing confidentiality measures, including minors or adults lacking capacity to consent as subjects when previously only adults with capacity to consent were to be enrolled, no longer collecting signed HIPAA Authorization, etc. Please reach out to the IRB Staff with any questions about if a change to the study warrants an Amendment.
- **Reportable New Information** - Using the Reportable New Information e-form, report new information items such as those described in HRP-071 Policy - Prompt Reporting Requirements to the IRB **within 5 days**.
- **Closure report** - Using a closure e-form, submit when the study is permanently closed to enrollment; all subjects have completed all protocol related interventions and interactions; collection of private identifiable information is complete; and analysis of private identifiable information is complete.

**For the complete list of investigator responsibilities, please see the HRP-070 Policy – Investigator Obligations, the Investigator Manual (HRP-910), and other Policies and Procedures** found on the Temple University IRB website: <https://research.temple.edu/irb-forms-standard-operating-procedures>.

Please contact the IRB at (215) 707-3390 if you have any questions.

## APPENDIX B

### SUMMARY OF RAW DATA COLLECTION

This appendix presents a detailed summary of responses collected from third- and fourth-year dental students at the Temple University Maurice H. Kornberg School of Dentistry during the Fall 2023 survey on Advanced Education in General Dentistry (AEGD) awareness and interest.

The survey instrument included 15 structured questions, grouped into five domains:

1. Demographic Information
2. Awareness of AEGD Programs
3. Likelihood of Application
4. Perceived Barriers to Enrollment
5. Factors That Would Increase Program Interest

| Question                                 | Answer Choices            | Response Percent | Responses |
|--|---------------------------|------------------|-----------|
| Q1. What is your gender?                 | Female                    | 57.05%           | 89        |
|  | Male                      | 41.67%           | 65        |
|  | Other/Non-binary          | 1.28%            | 2         |
|  | Total Answered            |                  | 156       |
|  | Skipped                   |                  | 0         |
| Q2. What is your age?                    | Total Answered            |                  | 156       |
|  | Skipped                   |                  | 0         |
| Q3. What is your total household income? | Less than \$25,000        | 48.72%           | 76        |
|  | \$25,000 to \$50,000      | 6.41%            | 10        |
|  | \$50,000 to \$75,000      | 7.05%            | 11        |
|  | \$75,000 to \$100,000     | 4.49%            | 7         |
|  | Greater than \$100,000    | 33.33%           | 52        |
|  | Total Answered            |                  | 156       |
| Q4. Employment Status                    | Skipped                   |                  | 0         |
|  | Employed, full-time       | 10.97%           | 17        |
|  | Employed, part-time       | 7.74%            | 12        |
|  | Student only              | 81.29%           | 126       |
|  | Total Answered            |                  | 155       |
| Q5. Relationship Status                  | Skipped                   |                  | 1         |
|  | Single, not partnered     | 32.26%           | 50        |
|  | Single, in a relationship | 43.23%           | 67        |
|  | Married                   | 22.58%           | 35        |
|  | Divorced                  | 1.94%            | 3         |
|  | Total Answered            |                  | 155       |
|  | Skipped                   |                  | 1         |

|   |   |        |     |
|---|---|--------|-----|
| Q6. Year of Study   | D3  | 44.83% | 65  |
|   | D4  | 55.17% | 80  |
|   | Total Answered                                |        | 145 |
|   | Skipped                                       |        | 11  |
| Q7. Likelihood of applying for an AEGD?                     | Very likely                                   | 4.52%  | 7   |
|   | Somewhat likely                               | 12.90% | 20  |
|   | Unsure  | 20.65% | 32  |
|   | Somewhat unlikely                             | 15.48% | 24  |
|   | Very Unlikely                                 | 46.45% | 72  |
|   | Total Answered                                |        | 155 |
|   | Skipped                                       |        | 1   |
| Q8. Awareness of AEGD program                               | Very aware                                    | 26.45% | 41  |
|   | Somewhat aware                                | 25.81% | 40  |
|   | Unsure  | 21.29% | 33  |
|   | Not very aware                                | 18.06% | 28  |
|   | Very unaware                                  | 8.39%  | 13  |
|   | Total Answered                                |        | 155 |
|   | Skipped                                       |        | 1   |
| Q9. Do you know the difference between AEGD and GPR?        | Yes   | 68.39% | 106 |
|   | No  | 31.61% | 49  |
|   | Total Answered                                |        | 155 |
|   | Skipped                                       |        | 1   |
| Q10. Will AEGD graduation help in earning a higher income?  | Yes   | 37.82% | 59  |
|   | Unsure/Neutral                                | 39.74% | 62  |
|   | No  | 22.44% | 35  |
|   | Total Answered                                |        | 156 |
|   | Skipped                                       |        | 0   |
| Q11. What is more important: salary or clinical experience? | Competitive salary                            | 23.72% | 37  |
|   | Clinical experience                           | 76.28% | 119 |
|   | Total Answered                                |        | 156 |
|   | Skipped                                       |        | 0   |
| Q12. Are there barriers preventing you from pursuing AEGD?  | Yes   | 48.08% | 75  |
|   | No  | 51.92% | 81  |
|   | Total Answered                                |        | 156 |
|   | Skipped                                       |        | 0   |
| Q13. Barriers to pursuing AEGD (Weighted Average Score)     | Financial concerns (tuition, living expenses) | 3.8    |     |

|   |  |      |  |
|---|--|------|--|
|   | Lack of career incentives                    | 3.07 |  |
|   | External pressures (family, friends)         | 2.58 |  |
|   | Availability of other training opportunities | 3.28 |  |
|   | Eager to start career as a dentist           | 3.9  |  |
|   | Student responsibilities                     | 3.37 |  |
| Q14. Influence of training opportunities on likelihood of applying for AEGD | Digital Dentistry                            | 3.68 |  |
|   | Dental Public Health (DPH) Residency         | 2.37 |  |
|   | Implant Placement and Restoring Implants     | 4.23 |  |
|   | Financial Incentives                         | 4.27 |  |