



Trends associated with debt loads among oral and maxillofacial surgery chief residents

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Objective. This survey-based study was undertaken to investigate how total debt loads are impacting the personal and professional decisions made by graduating oral and maxillofacial surgery (OMS) residents. The aim of this study was to evaluate differences in total debt load on graduating residents and analyze the effects of this debt on career, family, and lifestyle choices after graduation.

Study Design. This study was a cross-sectional, web-based survey of all graduating OMS residents in accredited OMS residency programs in the United States. Participation in the survey was optional, and all responses were anonymously collected and the data analyzed by using Qualtrics software. The respondents were analyzed as a collective, with the predictor of the study being program training length and the outcome being total debt load, with independent analysis of select other financial variables.

Results. For the 246 deliverable emails, there were 120 respondents (48.7% response rate). The average graduating OMS resident was a Caucasian male (median age 32 years), living with a significant other or spouse who independently earned money, and had no dependents. The average range of accumulated debt of graduating residents was between \$300,000 and \$350,000, with 50.83% of the respondents having \$350,000 or less in overall debt and 49.17% of the respondents having \$350,000 or greater in accumulated debt. For those respondents completing 4-year programs, the average range of accumulated debt was between \$250,000 and \$300,000, and for those respondents completing 6-year programs, the average range of accumulated debt was between \$400,000 and \$450,000 ($P < .08$).

Conclusions. Graduating OMS residents carry with them a significant amount of debt whether graduating from a 4-year program or a 6-year program. However, when subjectively queried, most of these residents stated they would again choose OMS as a career choice. (Oral Surg Oral Med Oral Pathol Oral Radiol 2019;128:590–596)

The cost to finance professional education is a topic of much discussion in both the medical and dental fields today. Medical school graduates in 2010 were estimated to graduate with debt just under \$160,000, which was a 50% increase over the previous 10 years, even after correction for inflation.¹ More recently, in 2017, the Association of American Medical Colleges reported that the median 4-year cost of public medical school was \$240,351, and the cost of private medical school was \$314,203.² Although there is some advantage to evaluating how debt accumulates while financing medical school,³ greater than 80% of U.S. medical students still graduate with a debt of \$100,000 or greater.⁴ Similarly, public and private dental schools began to increase tuition and fees over the last 20 years in response to decreasing public financial support.⁵ Of the dental school graduates in the class of 2016, only 16% had no debt, and 34% had debt exceeding \$300,000 (including undergraduate students).⁶ Dentists' income did not rise as rapidly over the same period.⁷ The discrepancy in higher educational debt

weighed against flat inflation-adjusted earnings⁸ has created speculation that professional education may be in a bubble market.⁹

The cost of completing medical and dental residency training has also been discussed in great detail, with many articles illustrating a broad range of resident indebtedness and resident preparedness to handle indebtedness following completion of training, depending on their specialty.¹⁰⁻¹⁶ The purpose of this study was to subjectively and objectively evaluate how debt has affected the most recent (2018) graduating class of oral and maxillofacial surgeons, especially with consideration as to whether or not program length affects the indebtedness and/or career choices. We hypothesized that residents completing 6-year programs are more indebted compared with their 4-year counterparts, but that career choices are similar among both groups despite differences in indebtedness. The specific aims were to specifically quantify the amount of debt graduating oral and maxillofacial surgery (OMS) residents had and compare the differences in indebtedness on the basis of program training length. We also sought to evaluate how any added household income via spousal or partner supplementation and/or moonlighting affected indebtedness. Last, we wanted to subjectively analyze how indebtedness has affected the residents with debt by querying their emotional perspective on their total accumulated debt. Further, this article hopes to provide a framework for program directors with the aim of establishing future directions for the financial management and financial literacy of graduating OMS residents.

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MATERIALS AND METHODS

Our survey-based study was reviewed by the institutional review board at the University of Texas Health Science Center (San Antonio, TX) in January 2018 and was determined that the study was not regulated research and, as such, did not require approval (HSC20180038N).

Study design and sample

To address the research purpose, the investigators designed a web-based survey by using Qualtrics software, version May–July 2018 (Qualtrics, Provo, UT). Beginning May 1, 2018, a total of 257 emails with the anonymous survey link were sent to chief residents in OMS programs throughout the United States, and the survey was left open for a total of 6 weeks, closing on June 12, 2018. Of the 257 emails sent, 246 were deliverable, with 128 responses to the survey received by the survey close date. Of the 128 responses, only 120 were fully completed. The response rate during this period was 48.7%.

Variables and survey design

A 26-question survey was designed with free response and multiple-choice options. The survey was subdivided into 4 parts based on types of questions as follows: Part 1 – demographic characteristics; part 2 – training program specifics; part 3 – financial considerations; part 4 – reactions to debt. If a respondent indicated in part 3 that he or she had \$0 debt at the time of response, then part 3 was only partially displayed, part 4 was not displayed, and the survey ended with only collection of demographic, training program specifics, and only a few financial considerations. Likewise, only 3 questions were generated if the previous question had a positive response, as follows: (1) Respondents indicating that they had no dependents were not provided the question about the number of dependents; (2) respondents indicating that they primarily financed dental school through anything other than scholarships were not provided the question about what type of scholarship was received to primarily finance dental school; and (3) respondents indicating that they did not accrue more debt while in residency were not provided the question about approximately how much more debt was accrued while in residency.

To be included as part of the final study sample, chief residents must have completed the survey in its entirety, and those respondents who did not fill out the survey completely were excluded. A total of 8 incompletely filled out surveys were excluded from the final data collection and data analyses.

Data collection methods and data analyses

An anonymous link for the aforementioned survey was created through Qualtrics software, which identified

respondents only by a randomly generated numerical identification. Each anonymous link allowed individual respondents access to their anonymous survey. These surveys could be completed in entirety at one time, or the responses could be saved until the link was reopened by the respondent at a later time. Only respondents with access to the email with the original link had access to the survey. All data were collected by using the Qualtrics software platform, and all data analyses were also performed by using the same software platform. Data could be viewed for each individual respondent or as total responses of all respondents to individual questions. Further, data could be cross-tabulated to compare the responses of one question with other variables of interest.

With many variables of interest to be cross-tabulated, we decided that the primary predictor of the study was program training length and that the primary outcome was the total debt load a respondent had. The second category of variables analyzed was demographic data describing the respondents by determining the age, gender, marital status, and avenues of supplemental outcome that the respondents may have received and how these demographic characteristics may affect the overall outcome of total debt accumulated. A third set of variables, unrelated to the primary outcome, was a collection of answers aimed at gauging the emotional response of respondents to their accumulated debt.

RESULTS

Demographic characteristics

The results of demographic data are summarized in [Table I](#). Of the 120 respondents, 87.5% were males (average age 32.8 years; median age 32 years). The majority of the respondents indicated that they were white (82.5%) and married (69.17%). Of the respondents who indicated that they were living with a spouse or significant other, 61.67% indicated that their spouses/significant others had independent incomes. Furthermore, 54.17% of respondents indicated that they did not have any dependents. Those who did have dependents, most commonly had 1 or 2 dependents.

Training program specifics and plans after graduation

The results of training program specifics are summarized in [Table II](#). Of the 120 respondents to this survey, 68 respondents (56.67%) indicated that they are completing a 4-year program, and 52 (43.33%) indicated that they were completing a 6-year program. The majority of the respondents indicated that they would be pursuing private practice and that they did not or would not participate in the Public Service Loan Forgiveness program.

Table I. Respondent demographic characteristics

Characteristic	Number of respondents (%) N = 120
Gender:	
Male	105 (87.5%)
Female	15 (12.5%)
Age:	
Median age	32
Mean age	32.77
Race/Ethnicity:	
White	99 (82.5%)
Hispanic or Latino	2 (1.67%)
Black or African American	5 (4.17%)
Asian	14 (11.67%)
American Indian or Alaska Native	0 (0%)
Native Hawaiian or Pacific Islander	0 (0%)
Marital Status:	
Married	83 (69.17%)
Not Married, Living Alone	26 (21.67%)
Not Married, Living with Significant Other	11 (9.17%)
If Living with Spouse/Significant Other, Do They Work:	
Yes	74 (61.67%)
No	42 (35%)
Sometimes	4 (3.33%)
Dependents:	
Yes	55 (45.83%)
No	65 (54.17%)
Number of Dependents:*	
1	20 (36.36%)
2	20 (36.36%)
3	8 (14.55%)
4	3 (5.45%)
≥5	4 (7.27%)

*Numbers based on N = 55.

Financial considerations

The majority of the respondents indicated that when they began dental school, they had no debt and primarily financed their dental education through student loans. Of the respondent who did finance their dental school education through scholarships, the majority had scholarships that were military in nature (e.g., Health Professions Scholarship Program).

With regard to the amount of debt the chief residents had when beginning residency, the range was \$0 to greater than \$500,000 (average range \$200,000–\$250,000). The majority of the respondents indicated that they accrued more debt during their residency, with a total accrued amount of debt ranging from \$0 to greater than \$300,000. The average range of accrued additional debt while in residency of those that indicated that they accrued additional debt was from \$150,000 to \$200,000.

With regard to all loans accumulated, the majority of respondents indicated that greater than 60% of their loans were unsubsidized—that is, the loans began accruing interest once received (mean interest rate 6.47% and median interest rate 6.8%). The graduating

Table II. Training program specifics and plans after graduation

Characteristic	Number of respondents (%) N = 120
4-Year or 6-Year Program:	
4-year	68 (56.67%)
6-year	52 (43.33%)
Plans After Graduation:	
Academic Faculty Position	7 (5.83%)
Private Practice	92 (76.67%)
Fellowship Training, followed by Academic Faculty Position	4 (3.33%)
Fellowship Training, followed by Private Practice	6 (5%)
Fellowship Training, followed by Undecided	3 (2.5%)
Military Obligation	8 (6.67%)
Participant in Public Service Loan Forgiveness Program (PSLF):	
Yes	7 (5.83%)
No	113 (94.17%)
Start or Continue PSLF after graduation:	
Yes	7 (5.83%)
No	105 (87.5%)
Maybe	8 (6.67%)

residents were also asked if they moonlighted for extra income during residency, and 85% of respondents indicated that they did not.

The residents were then asked what their expected first-year salary out of residency would be, and the responses indicated a median income of \$250,000 and a mean income of \$264,008. The residents were then queried on what percentage of that expected annual salary would be used for debt repayment, and the responses indicated an average range of 15% to 19.9%, with most respondents stating that they would use greater than 20% of their expected annual salary for repayment. The residents were then asked if the total accumulated debt affected their career choice after residency, and the majority of the respondents indicated that it did affect their choice; however, the majority also indicated that they would make the same career choice (as an oral and maxillofacial surgeon) because they always knew that they would accumulate the amount of debt that they had on the day they took the survey.

Finally, the residents were asked how much total debt they had on the day of the survey. If the respondents answered that they had \$0 in debt, they then finished the survey without completing the last 5 questions aimed at those with debt (see “Reactions to Debt” below). The range of debt was from \$0 to greater than \$900,000, with the average range of total accumulated debt at the time of the survey being \$300,000 to \$350,000. Of these respondents, 24.16% indicated that they had greater than \$500,000 in debt.

Reactions to debt

The final portion of the questionnaire was adapted from Young et al.,¹⁴ based on a visual analogue scale of 1 to 100, by which subjective parameters were rated.¹⁷ The residents were then asked to rate their emotional reactions to their debt and financial savvy being, by answering a series of 5 statements, with 1 being “not at all” and 100 being “the most possible.” The 5 statements were (1) “I feel anxious about my debt” (mean score 62.85); (2) “I feel trapped by my debt” (mean score 47.08); (3) “I regret accumulating my debt” (mean score 32.71); (4) “I worry about my life after residency because of debt” (mean score 46.32); and (5) “I feel savvy about finances” (mean score 43.98). Their recorded responses are shown in Figure 1.

Training program duration

For select financial considerations, a comparison was made between residents completing a 4-year program and those completing a 6-year program. This revealed that the median indebtedness of residents when entering dental school was \$0 regardless of training length. The average range of debt of residents when entering residency was \$200,000 to \$250,000 regardless of training length. When independently analyzing the third variable, debt accrued during residency, we found that only 39 of the 68 residents (57.4%) in a 4-year training program accrued more debt, whereas 44 of the 52 residents (84.6%) in a 6-year training program accrued more debt. The average range of additional debt accrued while in residency of those in a 4-year training program was \$50,000 to \$100,000, and the average range of additional debt accrued while in residency of those in a 6-year training program was

\$100,000 to \$150,000. Last, when independently analyzing how much total debt the chief residents had at the time of the survey, those in a 4-year training program reported an average range of debt of \$250,000 to \$300,000, and those in a 6-year training program reported an average range of debt of \$400,000 to \$450,000. These findings are summarized in Figure 2.

Income earned

A comparison was made between those residents who responded that extra household income was earned by a spouse or significant other and those who moonlighted for extra income to determine overall debt accumulated at the end of the residency. This revealed that the average range of indebtedness of residents who had a spouse or significant other who earned income was \$300,000 to \$350,000, whereas that of those who did not have a spouse or significant other working was \$350,000 to \$400,000. Furthermore, those residents who moonlighted for extra income and those who did not moonlight for extra income both had an average range of overall indebtedness of \$350,000 to \$400,000.

Plans after graduation

We compared the residents’ plans after a graduation as affected by overall debt accumulated at the end of the residency. Of the 7 respondents who chose academics as their career, 4 (57%) had less than \$300,000 in debt, and 3 (43%) had greater than \$300,000 in debt. Of the 6 respondents who chose fellowship training followed by an academic faculty position, 2 (33%) had less than \$300,000 in debt and 4 (67%) had greater than \$300,000 in debt. All of the 8 respondents (100%) who stated that they had a military obligation following

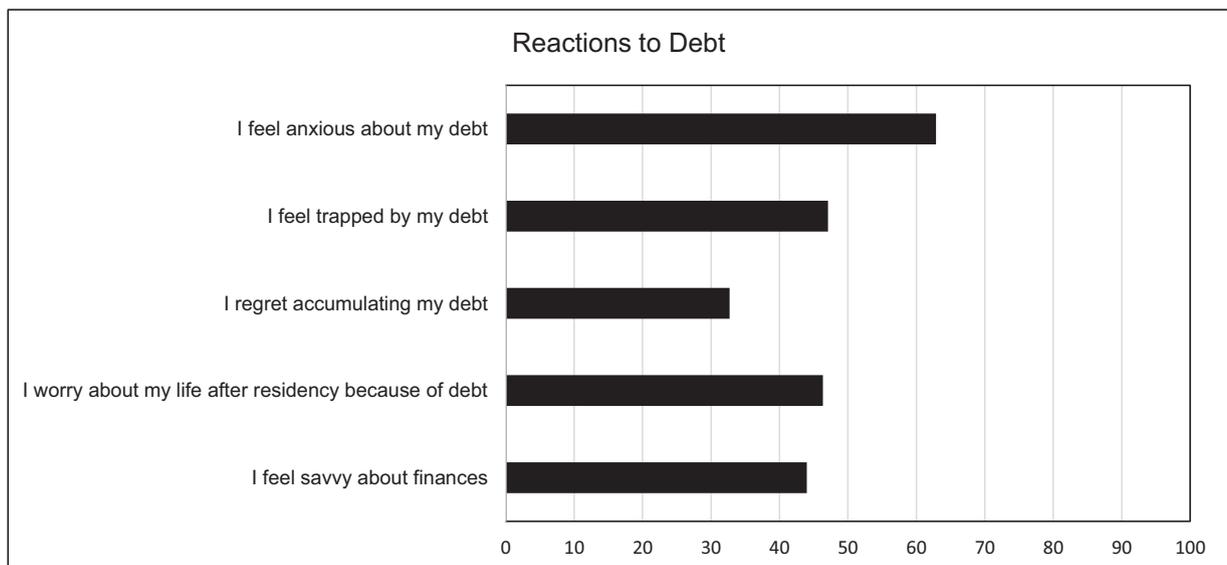


Fig. 1. Reactions to debt.

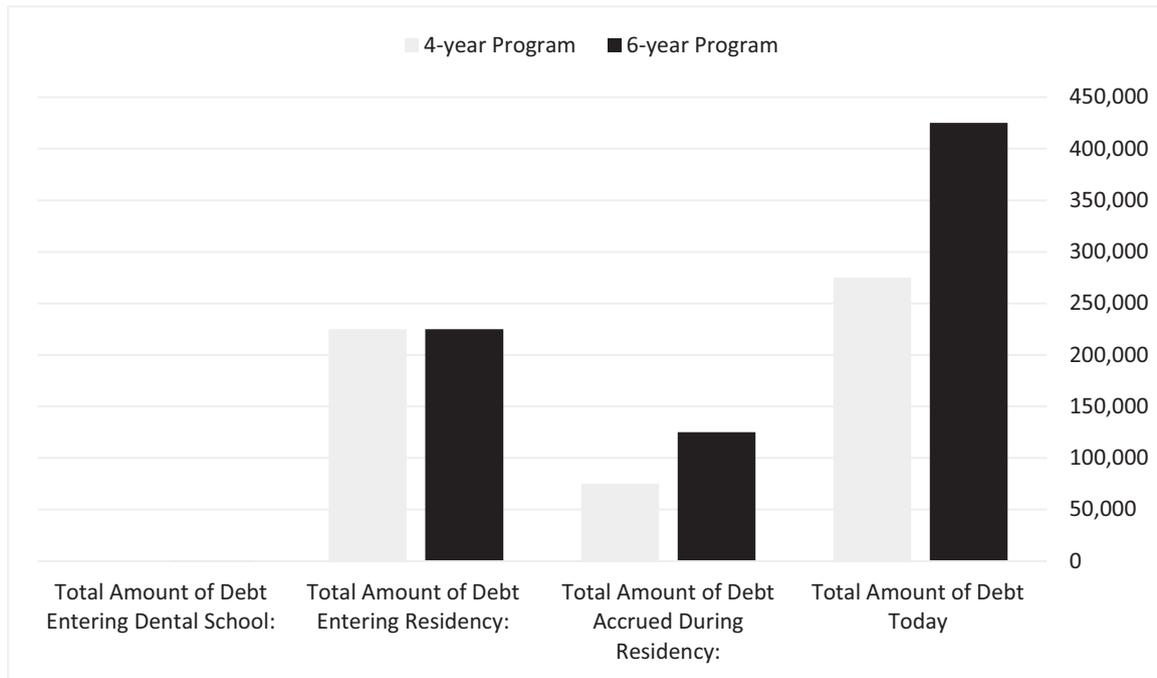


Fig. 2. Training length evaluation against financial considerations.

training had less than \$300,000 in debt. Of the 92 respondents who chose private practice, 36 (39%) had less than \$300,000 in debt, and 56 (61%) had greater than \$300,000 in debt. All of the 4 respondents (100%) who chose fellowship training followed by private practice had greater than \$300,000 in debt. Also, all of the 3 respondents (100%) who chose fellowship training followed by “undecided,” had greater than \$300,000 in debt.

DISCUSSION

The purpose of this study was to subjectively and objectively evaluate how debt has affected the most recent (2018) graduating class of oral and maxillofacial surgeons, especially with consideration as to whether or not program length affects the indebtedness and/or career choices. Our hypothesis was that residents completing 6-year programs are more indebted compared with their 4-year counterparts, but that career choices, despite differences in indebtedness, are similar in both groups, as demonstrated by our study. Our specific aims were to quantify the amount of debt graduating OMS residents had and compare the differences in indebtedness according to program training length. We also sought to evaluate how any added household income *via* spousal or partner supplementation and/or moonlighting affected indebtedness. Last, we wanted to subjectively analyze how indebtedness has affected those residents with debt by querying their emotional responses to their total accumulated debt. Our study found that OMS residents graduating from 6-year

programs did have more debt but that increase in debt did not change career or personal choices after graduation and the emotional responses to debt were not different between the 4-year or 6-year groups.

Our study demonstrated that the average range of debt accumulated by graduating oral and maxillofacial surgeons was \$300,000 to \$350,000, with 50.83% of the respondents having \$350,000 or less in overall debt and 49.17% of the respondents having \$350,000 or greater in accumulated debt. Of those respondents completing 6-year programs, median accumulated debt was \$150,000 more than that of residents completing a 4-year program. Although previous studies have shown that student debt affects the future of the dental profession, this study attempted to quantify just how much debt does affect our profession, much as other professional organizations have begun to evaluate how much debt has influenced and burdened its graduates. Although some residents demonstrated that they were able to manage their debt load through resident salaries and/or those of their spouses or significant others, total accumulated debt of graduating OMS residents is still significant.

Student debt is increasing for any person pursuing a career in medicine and/or dentistry. With debt/income ratios continuing to increase, with professional indebtedness outpacing inflation¹⁸ and income after professional education not increasing at the same rate as inflation,¹⁹ the desire to pursue professional education will continue to decline. For those completing longer residency training programs, the debt can climb to

extraordinary amounts, especially with subsidization of many of the government-based loans being eliminated after the advent of the Budget Control Act of 2011.¹⁸ Because of the ever-changing landscape of debt resulting from professional education and residency training, there has been recent probing into the financial literacy and money management habits of residents and recent graduates.^{13,20-27}

These topics are also being discussed by others in the field of dentistry.^{28,29} Specifically, the cost to become an oral and maxillofacial surgeon is increasing, just as it is in many other professional fields as mentioned earlier. Dental students interested in pursuing the specialty may be deterred by the significant amount of debt that would accrue during OMS residency. For each increase of \$10,000 in debt, there is a 1.5% less chance of a graduating dental student pursuing advanced education, such as OMS, vs going into practice immediately.⁷ In an editorial, Assael proposed that residents not pursuing OMS indicates failure of the specialty to invest in people.²⁸ Assael further speculated that prestigious OMS residencies going unfilled results from the very same reasons, with highly qualified applicants being deterred by their overwhelming debt burdens. He recommended financial subsidization, in whatever way possible, to help those interested in becoming oral and maxillofacial surgeons. However, this article is the first to quantify and investigate the trends in total debt load among graduating OMS residents.

The topic of debt among OMS residents was assessed in 2012 with the finding that residents who entered private practice were more likely to have debts between \$301,000 and \$400,000 vs with those interested in entering academia having less debt.²⁸ Although there has been previous research on what factors influence a career in academia,²⁸⁻³¹ the aforementioned study²⁸ was the first to begin to effectively evaluate how indebtedness plays a role in the career choices of future oral and maxillofacial surgeons.

As previously demonstrated,³⁰ the majority of graduates pursue private practice, and it can be speculated that this is, in large part, a result of overwhelming student debts. From our survey findings, a significant number of respondents reported choosing private practice as a career because they had more than \$300,000 in debt. In their reactions to debt, respondents indicated that debt was something that weighed heavily on their minds; however, despite the anxiety and concern of the debt and the fact that many residents are not savvy about their finances, many of the respondents did not regret accumulating their debt to get the education of their choice.

This survey-based study has several limitations. It was based on collected, subjective data as opposed to

tax-reported statistical data that can be more objectively analyzed. There is potential for recall bias if respondents were unsure of the specifics of their debts and simply responded on the basis of what they remembered, rather than analyzing their actual numbers in their debts. This survey also only accounted for 48.7% of graduating OMS residents, and although 120 is a large sample size, there is potential for sample bias. Furthermore, self-selection to participate in this study introduces some sample bias because only those who are interested in the topics or results of this study may have participated. This survey was anonymized to help promote honesty and confidentiality in reporting finances, which can be a very personal topic for many, but validity can be called into question because of the inability to effectively identify outliers.

There is no question that educational debt, with all the variables that contribute to the borrowing and paying off such debt, is a complex and individualistic topic. However, with such an overwhelming debt burden carried by many of our graduating residents, advocacy through financial subsidies via scholarships, subsidized loans, or state-specific deferment loans would encourage well-qualified applicants to pursue and advance our specialty. It would be wise for program directors to educate residents in money management strategies and to provide resources that would allow them to educate themselves on the downstream effects that debt has on career choices. One positive outcome of this survey-based study is the respondents' overwhelming affirmation of their career choice as oral and maxillofacial surgeons despite the huge amounts of accumulated debt.

CONCLUSIONS

OMS residents carry a considerable amount of debt, which is a major factor in career choices. Our study demonstrated that whether a resident was in a 4-year or 6-year OMS residency, the debt accumulated during training rivals that of many of the counterparts from other medical specialties with longer training periods. Those completing a 6-year residency had more debt, which is likely associated with additional tuition paid toward medical school, but the difference was not statistically significant. Regardless of the duration of the OMS training program, residency may be the first time residents are forced to evaluate and begin budgeting for repayment of accrued debt. The results of this survey-based study effectively showed that residents experience a considerable amount of anxiety about their accumulated debt and that most are not financially savvy, and this creates a stressful socioeconomic and financial situation for them. Future investigations of this issue could include measuring the response of residents' financial savvy before and after financial

education is added to the curriculum. Further, future studies could query younger residents on the same topics to evaluate total debt load trends among the future graduating classes of OMS programs.

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