

Life vs Loans: Does Debt Affect Career Satisfaction in Osteopathic Graduates?

Jesse Richards, DO; Caleb J. Scheckel, DO; Alicia Anderson, OMS III; Jessica R. Newman, DO; Kenneth G. Poole Jr, MD, MBA

From the Departments of Internal Medicine (Dr Richards) and Infectious Diseases (Dr Newman) at the University of Kansas Medical Center in Kansas City; the Division of Hematology and Medical Oncology at Mayo Clinic in Rochester, Minnesota (Dr Scheckel); the Midwestern University Arizona College of Osteopathic Medicine in Glendale (Student Dr Anderson); and the Division of Community Internal Medicine at the Mayo Clinic in Scottsdale, Arizona (Dr Poole). Drs Richards and Scheckel share first authorship.

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Address correspondence to Kenneth G. Poole Jr, MD, MBA, Division of Community Internal Medicine, Mayo Clinic, 13400 E Shea Blvd, Scottsdale, AZ 85259-5452.

Email: poole.kenneth@mayo.edu

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Background: The cost of undergraduate osteopathic medical education continues to grow. It is important to understand how the rising cost of matriculation negatively affects training and career satisfaction of entering students.

Objective: To better understand any association between level of educational debt and satisfaction with osteopathic medical education, career choice, and financial services.

Methods: Responses were analyzed from the American Association of Colleges of Osteopathic Medicine survey of pending medical school graduates from 2007 through 2016 regarding indebtedness and specialty selection.

Results: From 2007 to 2016, the mean educational debt level at graduation rose consistently among osteopathic graduates (from \$155,698 to \$240,331, respectively). In all years, there was no significant effect of debt quartile on satisfaction with choice of osteopathic medicine as a career. Quartile variable with debt did not show a significant effect on satisfaction with education experience in 2010, 2013, and 2016. Top quartile debt was associated with higher satisfaction with financial service departments in all years.

Conclusion: Although debt has consistently increased for osteopathic medical graduates, it does not affect their satisfaction with either their educational experience or their choice of osteopathic medicine as a career.

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Medical education represents a sizable investment to those who pursue it. Students ultimately dedicate years of study, forego years of income, and frequently accrue significant indebtedness in the form of student loans to complete their education endeavors. In 2018, the mean cost of an osteopathic medical education was \$254,953; this value is expected to increase as private and for-profit institutions expand into osteopathic medical education.¹⁻³ For this outlay of time and money, students reasonably expect gainful employment, income security, and a reasonable standard of living. Although a career in medicine was previously thought of as a calling, given the present long-term financial implications, the pursuit of a career in medicine may become an economic and consumer choice as well.

Despite the rising cost of medical education, demand for medical training continues to be strong. Competition around final acceptance can be fierce, as evidenced by the

Table 1.
Osteopathic Student Reported Satisfaction by Year^a

Satisfaction	Survey year			
	2007	2010	2013	2016
Satisfaction with quality of education (total)	2349	2891	3667	4179
Missing	53	17	17	11
Poor, %	4.30	7.51	7.20	8.73%
Average, %	14.6	10.4	11.0	13.2
Good, %	81.1	82.1	81.8	78.0
Enrollment (total)	2135	2890	3663	4164
Missing	267	18	21	26
No medical school, %	5.57	5.54	4.70	5.21
Allopathic, %	20.7	27.3	29.6	34.6
Other COM, %	8.85	11.5	9.17	11.4
Same COM, %	64.9	55.7	56.5	48.8
Career satisfaction (total)	2192	2895	3671	4177
Missing	210	13	13	13
Poor, %	2.42	5.66	4.85	5.20
Average, %	20.9	13.2	14.0	15.4
Good, %	76.6	81.1	81.2	79.4

Abbreviation: COM, college of osteopathic medicine.

increasing requirements for admissions. Competition is not solely on the side of applicants. In the age of Rate My Professors and Facebook reviews, satisfaction rankings of students are not only important as a means for schools to continuously improve the quality of their student educational experience, but also a way to entice applicants. Although the satisfaction of an individual student may influence his or her future financial support of the institution, on a larger scale, more trans-

parent satisfaction rankings may soon come to influence future student recruitment. According to the American Medical College Application Service used by the Association of American Medical Colleges (AAMC) as a centralized allopathic medical school application process, students currently apply to an average of 16 programs.⁵ Reputation rankings can be found from several sources, including *U.S. News and World Report's* yearly "Methodology: Best Medical Schools Rankings." Ranking is calculated by a peer assessment score (provided by medical school deans and residency directors, among others), research score, student selectivity, Medical College Admissions Test scores, grade point average, acceptance rate, and faculty resources.⁶ Medical schools must therefore invest in their students and programs to preserve satisfaction and appeal to the next generation of talent.

Against the backdrop of rising student indebtedness, a body of literature has appeared that examines its downstream effects. Among graduates of baccalaureate programs, students with higher debt burdens were less likely to endorse program satisfaction or believe that their program was "worth the cost."⁷ Similarly, law school graduates with higher debt burdens were less likely to describe their law school experience as "favorable" and more likely to consider a different school if given the option to redo their education.⁸ Within the realm of medical school, the influence of debt on risk of burnout,⁹ and depression,¹⁰ skepticism regarding policy changes,¹¹ and medical knowledge⁹ is well documented, but the potential role of debt on perceived medical education quality and overall career satisfaction is not understood.

As costs of education rise and debt loads increase, medical students and physicians who enter even the mostly highly rated programs are at risk of becoming less content with their education and career. In this study, the increasing cost of attendance and debt are examined, with osteopathic physicians' outlook on the quality of their education and career selection weighed against the effect of debt load on job satisfaction.

Methods

This study was deemed exempt by the Mayo Clinic institutional review board because no personally identifiable information was used. Data were obtained and analyzed with the permission of American Association of Colleges of Osteopathic Medicine (AACOM). Each year, AACOM invites all accredited colleges of osteopathic medicine to conduct a voluntary survey for graduating students. Similar to AAMC's Graduate Questionnaire,¹ this survey gathers information on demographics, specialty selection, anticipated practice decisions, indebtedness, and other various metrics of undergraduate medical education. Since its introduction, the AACOM survey has evolved to reflect changes in medical education, but questions regarding education and career satisfaction, as well as current level of indebtedness, have remained consistent.¹²

We examined responses to the following AACOM survey questions:

1. "Indicate the dollar amount borrowed to finance your osteopathic medical education."
2. "Please rate your overall satisfaction with the quality of your medical education."
3. "At this time, how satisfied are you that you selected osteopathic medicine as a career?"
4. "If given the opportunity to begin your medical education again, would you prefer to enroll in: the osteopathic medical school from which you are about to graduate, another osteopathic medical school, an allopathic medical school, or would not have gone to medical school at all?"

The surveys from 2007, 2010, 2013, and 2016 were chosen for the analysis.¹³ We evaluated national trends in perceived education quality, satisfaction in education quality and career selection, satisfaction with financial aid services, choice of same vs different education, and differences in high- vs low-debt respondents (as determined by lowest and highest quartiles of debt).

The software used for these analyses was SAS Studio (release 3.7, basic edition, SAS Institute Inc). We

assessed the univariable associations between the amount of medical school debt and the above questions using the χ^2 test, Fisher exact test with Monte Carlo *P* value, and analysis of variance. We used a multivariable proportional odds ratio (OR) model with logistic regression to assess relationships of interest. *P* < .05 indicated statistical significance. Categorical data are expressed as number and percentage. Deidentified data and analyses were placed in a password-protected Excel (Microsoft Corporation) spreadsheet and stored on a secured institutional network.

Results

The number of survey responses ranged from 2403 in 2007 to 4191 in 2016, respectively, reflecting the increased matriculation rate at osteopathic medical schools nationwide. The response rates for the years studied ranged from 72% to 77%, respectively.

We observed consistent increases in the mean educational debt level at graduation (from \$155,698 in 2007 to \$240,331 in 2016, respectively). The percentage of respondents graduating without debt declined from 19.3% in 2007 to 6.7% in 2010, respectively, but then increased to 12.3% by 2016.

In 2007, the indebtedness quartile variable with debt had a significant effect on satisfaction with student education outcome (*P* = .0001; using logistic regression analysis). Students with debt in the upper quartile (>75th percentile) were less likely to be satisfied with the quality of their medical education compared with students with indebtedness in the middle debt quartile (25th percentile; *P* = .75; OR [range], 0.677 [0.528-0.868]). These results were significant in 2007, but not in the other years examined. Quartile variable with debt did not show significant effect on satisfaction with education in 2010, 2013, or 2016 (*P* = .08, .16, and .052, respectively).

In all years, there was no significant effect of debt quartile on satisfaction with choice of osteopathic medicine as a career in either the low- or high-debt quartiles (Table 2).

Table 2.
Satisfaction Stratified by Educational Debt Quartile Among Osteopathic Medical Graduates^a

Quartile	Satisfaction level		
	Poor	Average	Good
2007			
Quality of education			
Q1	3.66	10.63	85.71
Q2 and Q3	4.17	14.37	81.46
Q4	5.24	18.92	75.84
Career			
Q1	2.10	19.66	78.24
Q2 and Q3	2.87	20.27	76.86
Q4	1.83	23.26	74.91
2010			
Quality of education			
Q1	7.16	8.54	84.30
Q2 and Q3	6.89	10.96	82.15
Q4	9.40	11.08	79.52
Career			
Q1	5.37	14.60	80.03
Q2 and Q3	5.55	12.15	82.30
Q4	6.28	14.11	79.61
2013			
Quality of education			
Q1	6.99	12.43	80.58
Q2 and Q3	6.56	10.45	82.99
Q4	8.57	10.24	81.18
Career			
	Poor	Average	Good
Q1	5.34	12.68	81.98
Q2 and Q3	4.22	14.25	81.53
Q4	5.23	14.24	80.53
2016			
Quality of education			
Q1	10.18	13.21	76.61
Q2 and Q3	7.29	13.23	79.48
Q4	9.63	12.51	77.86

(continued)

Table 2 (continued).
Satisfaction Stratified by Educational Debt Quartile Among Osteopathic Medical Graduates^a

Quartile	Satisfaction level		
	Poor	Average	Good
Career			
Q1	5.48	17.51	77.01
Q2 and Q3	4.60	14.96	80.44
Q4	5.85	13.78	80.38

^a Data are given as percentage.

Abbreviations: AACOM, American Association of Colleges of Osteopathic Medicine; COM, college of osteopathic medicine; Q, quartile.

In contrast, indebtedness quartile was found to have a significant effect on satisfaction regarding financial aid administration services in all years (all years, $P < .0001$), with students with lower debt ($P \leq 25$) less likely to report a satisfaction rating of “good” in all years (OR, 0.293, 0.480, 0.446, and 0.373, respectively) than those with middle quartile debt (25th percentile, 75th percentile). High debt (>75 th percentile) was not associated with consistent differences in satisfaction across years (Table 2).

In 2010 and 2016, students with no debt were more likely to report that if they could begin their education again, they would choose an allopathic medical school ($P = .026$ and $.0379$, respectively) with a mean OR (range) of 1.22 (0.904-1.651) in 2010 and an OR (range) of 1.313 (1.086-1.588) in 2016, respectively.

Discussion

Understanding satisfaction with medical training remains a complicated endeavor given the highly individualized and heterogeneous training experience that medical students undergo through classroom, practical, and clinical experiences. However, given the increasing levels of burnout in trainees¹¹ and a concerning projected shortage of physicians, comprehension of

factors affecting medical education satisfaction is vital.¹⁴

Despite a consistent increase in median debt over the 10-year period covered in this study, no consistent relationship was found between debt and satisfaction with the choice of osteopathic medical education. One would think that respondents with higher debt burdens graduating after the financial crisis of 2007-2008 would consistently skew toward having a worse experience given interest rate increases and a less than desirable outlook for the economy. Instead, those with higher debt burdens showed no signs of buyer's remorse. Debt does not appear to reliably affect satisfaction with quality of education. This finding would seem to point away from the cost of education being a deciding factor in trainees' perceptions of their education.

Additionally, although there was an intuitive theory that larger amounts of debt burden would translate to decrease in satisfaction with financial aid offices, the exact opposite was found, with students with low debt being less likely to rate financial aid offices as “good.” A confounding variable that may have affected this finding is the greater contact that students with financial assistance or scholarships have with financial aid offices. This factor points to a possible different

Table 3.
Medical School Enrollment Among Osteopathic Medical Graduates

Enrollment	No medical school	Allopathic	Other COM	Same COM
2007				
Q1	6.64	18.95	8.40	66.02
Q2 and Q3	4.79	20.83	8.39	65.99
Q4	6.03	22.03	10.36	61.58
2010				
Q1	4.43	29.18	11.07	55.33
Q2 and Q3	6.19	25.95	11.18	56.68
Q4	5.45	28.35	12.85	53.35
2013				
Q1	5.23	31.51	8.57	54.68
Q2 and Q3	4.83	27.89	8.94	58.33
Q4	3.90	31.07	10.02	55.01
2016				
Q1	5.51	38.48	10.43	45.57
Q2 and Q3	5.41	31.98	12.16	50.45
Q4	4.18	34.73	11.34	49.75

^a Data are given as percentage.

Abbreviations: AACOM, American Association of Colleges of Osteopathic Medicine; COM, college of osteopathic medicine; Q, quartile.

perspective and use of financial aid offices by students with different debt burdens.

In 2 separate years (2010 and 2016), students who had no debt said that they would have preferred to have gone to an allopathic medical school if they were repeating their education again. This is an unexpected finding that warrants further examination. Borrowing a large amount of money to finance education possibly skews an individual's expectation and opinion of his or her training.¹⁵ Students who are required to incur larger amounts of educational debt seem to place a higher value on their education. Additionally, there are a significant number of social, racial, and socioeconomic factors that have been strongly correlated with student loan debt.¹⁶ Examining socioeconomic background and other factors that may independently

contribute to educational satisfaction was beyond the scope of this analysis, but may be an avenue for further research.

Several limitations of this study, including a lack of socioeconomic, ethnic, and other background features, may hinder the ability to generalize these findings. However, to date, little research has been done on this topic and, despite an increase in legislative and medical school focus on educational debt, current students do not seem to be affected by it.

Conclusion

With the progressive rise in both trainee burnout and educational debt, the lack of clear association between student loans and educational satisfaction is a welcome

finding. Further research is needed to examine trends in student satisfaction and to help provide support for future medical education policy as a looming physician shortage nears.

Author Contributions

Drs Richards, Scheckel, and Poole provided substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; Drs Richards, Scheckel, and Newman, and Ms Anderson drafted the article or revised it critically for important intellectual content; Drs Richards, Scheckel, Newman, and Poole, and Miss Anderson gave final approval of the version of the article to be published; and all authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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