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Do You Know D.O.?: Pre-Medical Students’ Knowledge of Osteopathic Medicine and Its Relation to Burnout

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Background

It is estimated that in the near future there will be a shortage of physicians available to keep up with the needs of a growing older population. To try to account for this, medical schools are expanding class sizes and new schools are being created. While both allopathic and osteopathic schools are expanding, osteopathic schools are doing so a much faster rate. Unfortunately, it seems many students enter their undergraduate careers unaware of osteopathic medicine despite having an interest in medical school. Undergraduate student interest in becoming a medical doctor continues to rise, but so too does the difficulty of earning acceptance to medical school. In this competitive environment, little is known about students’ knowledge of their medical school options. Moreover, as undergraduate students’ emotional health continues to decline, little is known about whether premedical students experience or are at increased risk for the burnout symptoms reported by medical students and other physicians in training. This study examined students’ knowledge of osteopathic medicine, how they learned of osteopathic medicine, and any reported burnout.

Methods

This IRB approved study collected anonymous data in the form of an online survey from undergraduate students identifying as pre-medical at a mid-size, public research undergraduate institution. Students self-identified as “pre-med” either in their initial university application or by registering as such with the campus. Students were invited, over a series of emails, to participate in a survey assessing their knowledge of medical school types and other individual metrics related to perceived academic competence, knowledge, and burn out. Surveys were distributed online via Qualtrics. The survey was sent to 342 students with 160 (46.8%) completing the survey. Of those who completed the survey only students who confirmed they still consider themselves to be pre-med were included in analyses (n = 92, 57.5%).

To assess academic burn out, The Maslach Burnout Inventory – General Survey for Students (MBI-GS(S)) was included as a part of the survey. This 16-item measure includes three subscales of burn out indices: exhaustion (5 items), cynicism (5 items), and professional efficacy (6 items). The MBI-GS(S) was adapted from the MBI – General Survey. The MBI is a validated instrument which has long been considered the gold standard for measuring burnout in research. In addition, students were asked eight questions regarding general Osteopathic Medicine knowledge and admission to osteopathic medical schools. These questions included both true or false and multiple choice questions which were developed by the authors. Finally, students were also assessed for their preference for type of medical school (i.e. Osteopathic vs. Allopathic) and how they first learned about osteopathic medicine.

Results

A 2x2 factorial ANOVA was computed to assess main and interaction effects amongst respondents who prefer DO or MD programs, whether they learned of DO programs on their own research or not, and their scores on the three measures of the Maslach Burn Out Inventory: exhaustion, cynicism, and professional efficacy. Of the 92 students still interested in pursuing medical school, 48 (52.2%) responded by stating they researched osteopathic schools on their own. Table 1 provides a breakdown of responses. “Other” responses included American Medical Student Association, proximity to an Osteopathic school, graduate school fairs, “internet,” friends in an osteopathic school, and programs while in high school. Of these “other” responses, high school was mentioned the most at four responses.

Table 1: How respondents first heard of Osteopathic medicine

How did you first learn about Osteopathic Medicine?	Number
By researching medical schools on my own	48 (52.2%)
It was suggested by an advisor	5 (5.4%)
My parent(s) or family member is an osteopathic physician	7 (7.6%)
My physician is an osteopathic physician	1 (1.1%)
Other	19 (20.7%)

Respondents were asked to answer 8 questions regarding general osteopathic medicine knowledge. Out of the 92 respondents sampled, only 2 respondents (2.2%) answered all questions correctly. The remaining breakdown was as follows: 8.7% 7 correct, 6.5% 6 correct, 9.8% 5 correct, 9.8% 4 correct, 17.4% 3 correct, 16.3% 2 correct, 14.1% 1 correct, 15.2 chose not to answer. A 2x2 factorial ANOVA showed no main effects or an interaction effect between program preference (DO vs MD) and whether respondents learned of DO programs on their own research on how many correct answers respondents showed ($F(1,5) = .56, p = .57$). Tables 2 and 3 provide the responses to the questions regarding the practice of osteopathic manipulative medicine and how the requirements of osteopathic schools compare to that of allopathic schools.

Table 2: Osteopathic Knowledge True/False Questions

	True	False	Not Sure
Osteopathic Manipulative Medicine (OMM) is only used to treat musculoskeletal issues	10 (10.9%)	30 (32.6%)	47 (51.1%)
Every osteopathic physician uses OMM as a form of treatment	14 (15.2%)	22 (23.9%)	51 (55.4%)
If you graduate from an osteopathic medical school, you are required to perform OMM as an attending	14 (15.2%)	19 (20.7%)	53 (57.6%)
Osteopathic physicians can only practice primary care	4 (4.3%)	47 (51.1%)	36 (39.1%)

Table 3: DO/MD Comparison Questions

	Similar	MD more/higher standards	DO more/higher standards	Not Sure
As you understand, do both Allopathic and Osteopathic medical schools have similar admissions requirements? (i.e. specific classes during undergraduate years, taking the MCAT)	38 (41.3%)	16 (17.4%)	4 (4.4%)	31 (33.4%)
As you understand, do both Allopathic and Osteopathic medical schools have similar admissions standards? (i.e. GPA, MCAT score, overall CV)	36 (39.1%)	29 (31.5%)	0 (0%)	24 (26.1%)
As you understand, are both Allopathic and Osteopathic physicians trained to treat the same medical conditions?	42 (45.7%)	8 (8.7%)	14 (15.2%)	24 (26.1%)
As you understand, are both Allopathic and Osteopathic physicians licensed to practice in similar ways?	41 (44.6%)	12 (13.0%)	14 (15.2%)	22 (23.9%)

To assess differences in academic burn out, students who gave a preference for medical school type were included (n=52). Of the students who preferred osteopathic schools (n=22), 14 of those students researched DO schools on their own. This is compared to students who preferred MD schools (n=30), of which 17 researched schools on their own. Significant main effects were found neither for program preference nor whether they learned of DO programs on their own for any of the three burn out measures. A significant interaction effect was reported for cynicism and exhaustion such that when respondents reported learning of DO programs from a source other than their own research (such as advisor or family member) those who preferred DO programs reported significantly lower cynicism ($F(1,11) = 5.23, p = .03$; see Figure 1) and exhaustion ($F(1,13) = 5.79, p = .02$; see Figure 2) scores. No significant interaction was found for professional efficacy. These were small effect sizes, however, due to small sub-sample sizes statistical power was limited.

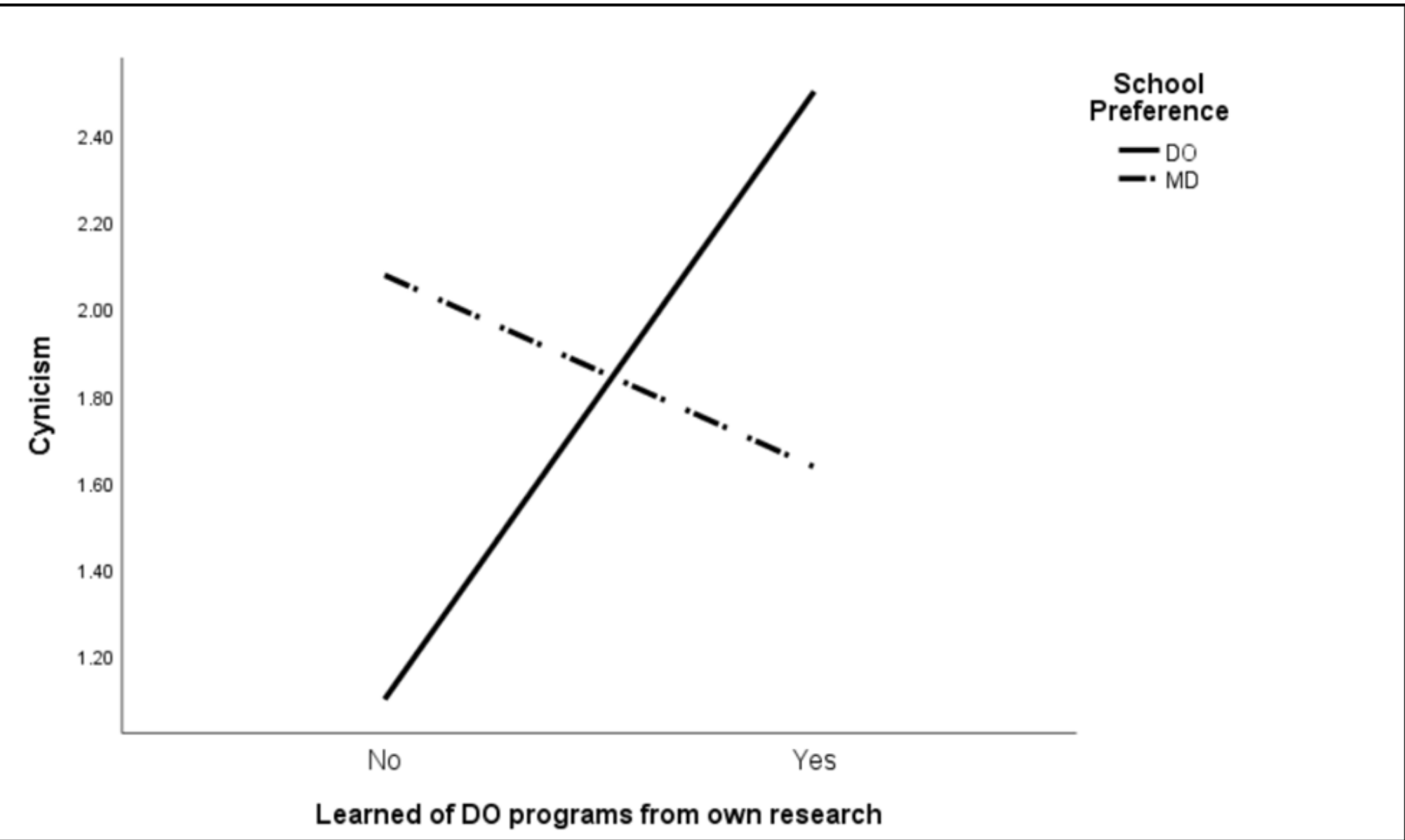


Figure 1: Factorial Results for Cynicism

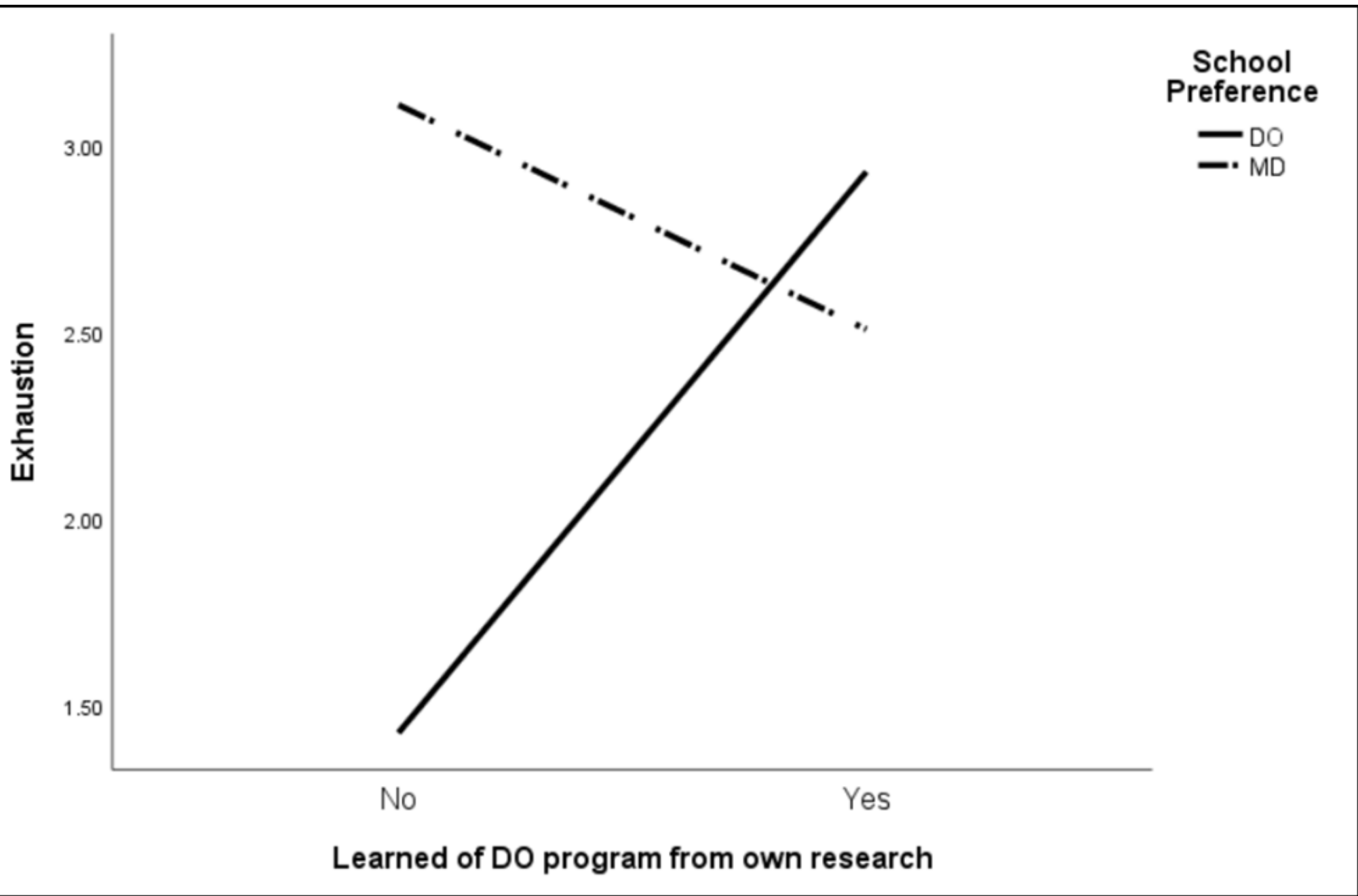


Figure 2: Factorial Results for Exhaustion

Conclusion

The results of this study suggest that among premedical students, their knowledge of osteopathic medicine may be incomplete and may be a hindrance in the medical school application process. Moreover, based on our findings, those who are interested in osteopathic medical schools and have learned of this option through their own research seem to experience greater burnout. With the need to train more physicians and current estimates suggesting that only 25% of medical students are enrolled in osteopathic programs, this seems a fitting opportunity to increase awareness of osteopathic medicine. We believe increased outreach and education has the potential to not only better inform students of the osteopathic profession but also to reduce burnout and, possibly, improve the quality of their educational experiences and overall wellness.