

1-2021

The Influence of Religious Belief on Burnout in Medical Students

Megan Haghnegahdar

Palash Sharma

Kevin P. Hubbard

W. Abraham White

The Influence of Religious Belief on Burnout in Medical Students

by Megan Haghnegahdar, MD, Palash Sharma, Kevin P. Hubbard, DO & W. Abraham White, MD



To our knowledge, this is the first study within the U.S. to examine the relationship between religious affiliation and burnout in medical students.



Megan Haghnegahdar, MD, (above), is at the University of Kansas School of Medicine, (KUSOM) Kansas City, Kansas. Palash Sharma is in the Department of Biostatistics & Data Science, (KUSOM). Kevin P. Hubbard, DO, HMDC, MACOI, is Professor of Internal Medicine and Chair, Department of Primary Care, Kansas City University of Medicine and Biosciences, Kansas City, Missouri. W. Abraham White, MD, is Assistant Professor, Department of Ophthalmology, (KUSOM).

Abstract Objective

Approximately half of all U.S. medical students are experiencing burnout. A previous study has demonstrated that higher levels of spirituality are associated with less burnout in medical students, yet no studies have examined the relationship between religious affiliation and burnout in medical students. The purpose of this study is to determine if specific religious affiliation and level of religious involvement is associated with less burnout in medical students.

Methods

A cross-sectional online survey was sent to all students attending five different osteopathic and allopathic medical schools in Kansas and Missouri. It contained a validated burnout measure, an item to identify religious affiliation, and items to quantify religious involvement.

Results

A response rate of 11.5% (495/4,300) was obtained. An ANOVA showed religious affiliations and burnout scores did not have any statistically significant relationships ($F = 0.762$, $P = 0.619$). Additionally, identification as an active participant within a religious affiliation had a statistically

significant effect on burnout scores ($F = 7.793$, $P = 0.005$).

Conclusions

This is the first study within the U.S. to show that religious affiliation is not associated with medical student burnout and that medical students who consider themselves to be active participants of their religion may be at lower risk of developing burnout, regardless of the faith they practice.

Background

Burnout is defined as a “state of exhaustion in which one is cynical about the value of one’s occupation and doubtful of one’s capacity to perform.”¹ As a topic that has been studied for decades, burnout has been notably recognized among physicians. It is estimated that approximately 45.8% of U.S. physicians are experiencing burnout.² Patients appear to also be impacted by this phenomenon, as studies have shown an increased frequency of self-perceived medical errors in physicians experiencing burnout.^{3,4}

A more recent topic of study is burnout during physician training, specifically during medical school. Multiple investigations have been conducted to assess the prevalence of burnout in medical students and physicians which have demonstrated that the prevalence

is variable, ranging from 2% to 76% based on the study samples, inclusion and exclusion criteria and geographic location.^{16,17,18,19,20,21,22}

In comparison to U.S. college graduates ages 22-32 years old, U.S. medical students have a higher prevalence of burnout.⁵ It is estimated that nearly 50% of all students enrolled in U.S. medical schools are experiencing burnout.⁶ Medical student burnout has been found to be more than a transient process and is associated with life-changing events. One study found that burnout in medical students is associated with increased likelihood of serious thoughts of dropping out.⁷ Another found that burnout in medical students even predicts suicidal ideation.⁶

A great deal of research has been dedicated to understanding how religion and spirituality influence burnout among health care workers. Spiritual well-being is associated with less burnout and greater resilience, particularly among nurses who work in high intensity settings.^{8,9,10} However, few efforts have been made to examine the role of religion in the prevention of burnout in medical students. A study by Wachholtz and Ragoff that surveyed medical students at a New England public medical school explored the relationship between levels of spirituality and burnout. They found that students with higher levels of spirituality are less likely to experience burnout.¹¹ They additionally collected religious affiliations (i.e. Buddhist, Hindu, Muslim, etc.) of the students surveyed, but did not provide analysis outside of percentages of their sample size that identified with each religion.

The aim of our study is to explore the relationship between religion and burnout in medical students. Our goal is to determine if specific religious affiliation and level of religious involvement is associated with lower burnout scores in medical students.

Table 1. Socio Demographic Characteristics

Variables	Category	
Religion n (%)	Agnostic	87 (17.6%)
	Atheist	68 (13.7%)
	Buddhist	3 (.6%)
	Christian	276 (55.8%)
	Hindu	13 (2.6%)
	Jewish	5 (1%)
	Muslim	16 (3.2%)
	Other	27 (5.5%)
Active Participant n (%)	Yes	271 (54.7%)
	No	224 (45.3%)
Religious Holidays n (%)	Yes	372 (75.2%)
	No	123 (24.8%)
Attend Service mean (SD)	21.80 (27.313)	
Hours/week mean (SD)	1.88 (3.042)	
Burnout Score mean (SD)	3.185 (1.0890)	

Methods

Study Design

This was an observational cross-sectional study using an anonymous online survey. Outcome assessments are religious affiliation, religious involvement, and level of burnout.

Participants

The sample was comprised of medical students of all four years attending five different allopathic and osteopathic medical schools in the states of Missouri and Kansas. Participants were not provided compensation for their participation.

Procedures

An introductory email with an informed consent statement with an online anonymous survey was sent to student affairs staff at each medical school using Research Electronic Data Capture (REDCap). Study data were collected and managed using REDCap electronic data capture tools hosted at the University

Table 2. ANOVA results of participant characteristics of Burnout study

	Burnout Score				
	SS	D.F.	MS	F	p*
Religion	6.335	7	0.905	0.762	.619
Active participant	9.098	1	9.098	7.793	.005**
Religious Holidays	12.590	2	5.295	5.414	.005**

*p<0.05 is statistically significant

**p<0.01 is statistically significant

R² = 0.106; Adj. R² = 0.061

Table 3. Cross tabulation of religious affiliations by burnout category score

Burnout Score	Religious affiliation								p*
	Agnostic	Atheist	Buddhist	Christian	Hindu	Judaism	Muslim	other	
Low	20(23)	24(35.5)	2(66.7)	77(27.9)	2(15.4)	2(40)	4(25)	6(21.4)	.858
Medium	30(34.5)	22(32.4)	0(0)	88(31.9)	4(30.8)	1(20)	5(31.3)	10(35.7)	
High	37(42.5)	22(32.4)	1(33.3)	111(40.2)	7(53.8)	2(40)	7(43.8)	12(42.9)	

Pearson χ^2 test with linear tendency ($P < 0.05$)

Subset of sample for each category (column proportions)

of Kansas Medical Center. REDCap is a secure web-based software platform designed to support for research studies.^{14,15} Each school distributed this letter to medical students enrolled at their institution by email or online newsletter. The REDCap survey included the Burnout Measure-Short Version and questions regarding religious affiliation and level of involvement. The survey was made available for three months in 2019.

Burnout Measure-Short Version

The Burnout Measure-Short Version is a 10-item, 7 point Likert scale which assesses career burnout.¹² It is a shorter form of the Burnout Measure, which is comprised of 21 items that defines burnout as physical, emotional, and mental exhaustion.¹³ A high correlation has been demonstrated between burnout scores obtained with both the Burnout Measure-Short Version and the Burnout Measure.¹³ The Burnout Measure-Short Version has adequate internal

consistency among various cultures and occupations as well as high stability as indicated by a three-month test-retest coefficient of 0.74.¹³ It has been validated through correlational analysis with several relevant variables across various populations, such as police officers, healthcare workers, and graduate students.¹³

Religious Affiliation and Involvement

Participants were asked in the online anonymous REDCap survey to identify their religious affiliation (Buddhist, Christian, Hindu, Jewish, Muslim, or Other) with the additional options of agnostic and atheist. They were also asked if they considered themselves an active participant of their religion and if they only attend religious services on religious holidays, both with answer options of “yes” or “no”. To quantify religious involvement, participants were asked how often in a year each participant attended religious services and how many hours they spend in religious activity each week.

The University of Kansas Medical Center Institutional Review Board reviewed and approved the protocol for this study.

Statistical Analysis

In this section, we present the statistical analysis and empirical results for our study. We generated descriptive statistics for continuous variables and frequencies and percentages for categorical variables. One-way analysis of covariance (ANOVA) was conducted to assess the effect of religious affiliations and level of involvement on burnout scores. Statistically significant results of religious affiliations, active participation, and attending services only on religious holidays were assessed. Visual inspection of the residual plots and their empirical histograms were used to check the model assumptions. Prior to conducting the ANOVA test, the homogeneity of variance assumption was tested for all burnout measurement scales. Based on Levene's F test, the homogeneity of variance assumption was considered satisfied, suggesting that ANOVA analysis would be robust for our study. Finally, a post-hoc analysis (Tukey's method) was performed to examine the pairwise mean difference across all religious affiliations and burnout scores.

We also completed a sensitivity analysis by conducting a Pearson chi-square test to measure the association between burnout scores (characterized as low, medium, and high scores) and religious affiliations. A Fisher exact test was substituted if 80% of the cells had an expected cell count of fewer than five. We used a p value of <0.05 as the threshold for statistical significance level. This approach allowed us to reduce the type I error rate to detect significant findings. Data manipulation and statistical analysis were performed with the R-Studio (Version 1.1.423) and the Statistical Package for Social Sciences (SPSS) version 22.0.

Results

A response rate of 11.5% was obtained, (495 surveys completed out of the total 4,300 medical students who received the email invitation). Study participant demographics are shown in Table 1. In this sample 276 (55.8%) identified as Christian, 16 (3.2%) Muslim, 13 (2.6%) Hindu, 5 (1%) Jewish, 87 (17.6%) agnostic, 68 (13.7%) atheist, and 27 (5.5%) identified with other religious affiliations. Two hundred and seventy-one (54.7%) identified as active participants

within their religion. Three hundred and seventy-two (75.2%) indicated they attend services only on religious holidays. On average, participants reported spending 1.88 hours per week in religious activity and 21.8 instances per year of attending religious services.

Results from the ANOVA are in Table 2. Religious affiliations and burnout scores were not found to have any statistically significant relationships ($F=0.762$, $P=0.619$). Identification as an active participant within a religious affiliation had a statistically significant effect on burnout scores ($F=7.793$, $P=0.005$). Identification as only attending services on religious holidays had a statistically significant effect on burnout score as well ($F=5.414$, $P=0.005$). Results from the Tukey HSD post ad-hoc pairwise comparison analysis also indicated no statistically significant effect between burnout and various religious affiliations in medical students among each group.

As part of our sensitivity analysis, we conducted a categorical analysis (Pearson chi-square test) by considering burnout scores as categorical variables shown in Table 3. There was no association ($P= 0.858$) found between burnout category (low, medium, and high) and religious affiliations in medical students, further supporting our previous analysis which considered burnout scores as continuous measurements.

Discussion

We found that there were no significant differences among the various religious affiliations in having lower burnout scores in medical students. In other words, no religious affiliation had significantly lower burnout scores compared to the others.

We additionally found that self-perception in that one is an active participant within one's religion is associated with lower burnout scores. However, there is no significant relationship between hours spent per week on religious activity and number of instances in a year spent participating in religious services. Medical students already pressed for time due to their heavy volume of studies may wonder how much participation within their religion is adequate to prevent burnout. Our study shows that self-identification as being an active participant alone is associated with lower burnout scores and that no exact quantification of time is associated with less burnout.

Interestingly, medical students who selected that they only attended religious services on religious holidays had significantly lower burnout scores. It is challenging to decipher why only attending religious services on religious holidays is associated with less burnout. We are interested in further studying this group within our sample to determine if other factors, such as demographics, contribute to this effect. Additionally, the question style of this item may have led to a misunderstanding among participants, such as perceiving that the question asked if the participant attended religious services on holidays, rather than “only” on holidays.

There are likely many factors that influence medical student burnout, religion being a piece of this puzzle. Our findings show no particular religious affiliation is associated with less burnout compared to others in medical students. Additionally, our study gives evidence that self-perception as being an active participant in religion and only attending services on religious holidays is associated with less burnout in medical students.

The limitations of our study include low response rate, a relatively small geographic distribution of our sample, lack of demographic information, and the working of the religious services questions. A poor response rate may have in fact be due to medical student burnout, causing them to avoid the survey. Additionally, those who responded to the survey likely possess pro-social behavior characteristics, potentially skewing the data. Future investigations should further explore the relationship between burnout and religious affiliation in both medical students and the general population using similar surveys. Additionally, future efforts should be made to collect qualitative reports from students in survey format to identify which aspects of their religious affiliation they find to be most protective against burnout, as this may further direct future studies.

Conclusion

To our knowledge, this is the first study within the U.S. to examine the relationship between religious affiliation and burnout in medical students. Our results suggest that medical students who consider themselves to be active participants of their religion may be at lower risk of developing burnout, regardless of the faith they practice.

References

- Maslach C, Jackson SE, Leiter MP. *Maslach Burnout Inventory Manual*. Palo Alto, CA: Consulting Psychologists Press; 1996.
- Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D, West CP, Sloan J, Oreskovich MR. Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med*. 2012; 172(18):1377-85.
- Shanafelt T, Balch C, Bechamps G, et al. Burnout and medical errors among American surgeons. *Annals of Surgery*. 2010; 251(6):995-1000.
- Qureshi HA, Rawlani R, Mioton LM, Dumanian GA, Kim JY, Rawlani V. Burnout phenomenon in U.S. plastic surgeons: risk factors and impact on quality of life. *Plast Reconstr Surg*. 2015; 135(2):619-26.
- Dyrbye LN, West CP, Satele D, Boone S, Tan L, Sloan J, Shanafelt TD. Burnout among U.S. medical students, residents, and early career physicians relative to the general U.S. population. *Acad Med*. 2014; 89(3):443-51.
- Dyrbye LN, Thomas MR, Massie FS, Power DV, Eacker A, Harper W, Durning S, Moutier C, Szydlo DW, Novotny PJ, Sloan JA, Shanafelt TD. Burnout and suicidal ideation among U.S. medical students. *Ann Intern Med*. 2008; 149(5):334-41.
- Dyrbye L, Thomas M, Power D, et al. Burnout and Serious Thoughts of Dropping Out of Medical School: A Multi-Institutional Study. *Academic Medicine*. 2010; 85(1):94-102.
- Rushon CH, Batcheller J, Schroeder K, Donohue P. Burnout and Resilience Among Nurses Practicing in High-Intensity Settings. *Am J Crit Care*. 2015; 24(5):412-20.
- Carneiro ÉM, Navinchandra SA, Vento L, Timóteo RP, de Fátima Borges M. Religiousness/Spirituality, Resilience and Burnout in Employees of a Public Hospital in Brazil. *J Relig Health*. 2019; 58(2):677-685
- Kim HS, Yeom HA. The association between spiritual well-being and burnout in intensive care unit nurses: A descriptive study. *Intensive Crit Care Nurs*. 2018; 46:92-97.
- Wachholtz A, Rogoff M. The relationship between spirituality and burnout among medical students. *J Contemp Med Educ*. 2013; 1(2):83-91.
- Pines AM, Aronson E. *Career Burnout: Causes and Cures*. New York: Free Press; 1988.
- Malach-Pines A. The Burnout Measure Short Version (BMS). *International Journal of Stress Management*. 2005; 12(1):78-88.
- PA Harris, R Taylor, R Thielke, J Payne, N Gonzalez, JG. Conde, Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009 Apr;42(2):377-81.
- PA Harris, R Taylor, BL Minor, V Elliott, M Fernandez, L O’Neal, L McLeod, G Delacqua, F Delacqua, J Kirby, SN Duda, REDCap Consortium, The REDCap consortium: Building an international community of software partners. *J Biomed Inform*. 2019 May 9 [doi: 10.1016/j.jbi.2019.103208]
- Galán, F, Sanmartín, A., Polo, J., & Giner, L. (2011). Burnout risk in medical students in Spain using the Maslach Burnout Inventory-Student Survey. *International archives of occupational and environmental health*, 84(4), 453-459.
- Dahlin ME, Runeson B (2007) Burnout and psychiatric morbidity among medical students entering clinical training: a three-year prospective questionnaire and interview-based study. *BMC Med Educ* 7:6-14
- Dahlin M, Joneborg N, Runeson B (2007) Performance-based self-esteem and burnout in a cross-sectional study of medical students. *Med Teach* 29:43-48
- Escriba-Agüir V, Martín-Baena D, Pérez-Hoyos S (2006) Psychosocial work environment and burnout among emergency medical and nursing staff. *Int Arch Occup Environ Health* 80:127-133
- Guthrie E, Black D, Bagalkote H, Shaw C, Campbell M, Creed F (1998) Psychological stress and burnout in medical students: a five-year prospective longitudinal study. *J R Soc Med* 91:237-243
- Martini S, Arfken C, Churchill A, Balon R (2004) Burnout comparison among residents in different medical specialties. *Acad Psychiatr* 28:240-242
- Santen SA, Holt DB, Kemp JD, Hemphill RR (2010) Burnout in medical students: examining the prevalence and associated factors. *South Med J* 103:758-763

Disclosure

None reported.

MM