

The Impact of Global Health Outreach Experiences on Medical Student Empathy and Burnout

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Abstract

Burnout and empathy decay in medical education is a prevalent and critical problem. In this study, we look at whether participation in a global health outreach experience, compared to a standard break from school, has a positive effect on burnout and empathy scores. A survey utilizing the Toronto Empathy Questionnaire (TEQ) and the Copenhagen Burnout Inventory-Student Survey (CBI-SS) was given to 1st and 2nd year osteopathic medical students participating in a one-week global health outreach experience 1 week before, 1 week after, and 10 weeks after the trip. The survey was also given to preclinical non-trip participants at the same time intervals. Preliminary results demonstrate decreased burnout scores and increased empathy scores in trip participants that widen with time compared to non-trip participants. These findings suggest a persistent protective and possibly combative effect against burnout and empathy decay in preclinical medical students participating in global health outreach experiences compared to a standard break from school. Further analysis of these results is needed to look at significance and to evaluate subgroups. Universities and other organizations should consider ways to identify and address barriers to these experiences so more students are able to take advantage of them.

Background

Although it has been established that generally burnout rates increase and levels of empathy decline throughout the years of medical school education¹⁻⁴, more research is needed in ways to combat these trends. With this project, we aim to objectively evaluate the effect of short-term global health outreach experiences (GHOEs) have on the levels of burnout and empathy of first- and second-year medical students. We hypothesize that involvement in GHOEs during their medical education can serve as a safeguard for experiencing burnout and losing empathy.

Burnout, which involves emotional exhaustion, depersonalization, and a decreased sense of accomplishment, is a common problem in medical students⁴⁻⁶, and it is important to note that loss of empathy and experiencing burnout affects more than student satisfaction with their education. This translates into significant personal costs, including impaired professional identity development and suicidal ideation, as well as health care costs such as increasing risks for medical errors and suboptimal patient care.^{1,3,6,7}

GHOEs are known to improve cultural awareness and enhance clinical skills and knowledge, as well as provide other positive benefits to those involved.⁷⁻⁹ And opportunities to participate in these trips has expanded with now almost two-thirds of medical students anticipating such an experience to be part of their medical education.⁶ Many returning from such experiences often boast a renewed sense of purpose, a deeper sense of gratitude and connection, and increased energy and drive at work.^{10,11} Vu, et al. even demonstrated in their study that these feelings of perceived benefit, such as adaptability, communication, and cultural skills, persist years after participation in such experiences as medical

students.¹² But do these anecdotal expressions translate into meaningful and significant changes? And, if so, can they function as tools to combat the increasing burnout experienced in the medical students and in the health care system in general?

Versions of this question has been looked at in a few small studies over the years with various groups. For example, Campbell et al. saw improvement in burnout for both physicians and nurses who participated in short-term medical missions both shortly after the experience and even greater at the 6 month follow-up.⁷ In a different study of emergency professionals, Yuguero, et al. found an association with empathy and burnout levels, suggesting that improvement in burnout could correlate with improved empathy towards patients.²

However, there have been conflicting studies as well. For example, Lauden, et al. in a national longitudinal study of pediatric residents did not show burnout protection through participation in a global health track or program that included global health experiences. They did find a higher empathy and spirituality levels in participants of the global health pathways.¹³

Motivations of the volunteers on these experiences may also play a role in their affect on burnout and empathy. And motivations can vary widely from cultural exposure and philanthropy, to educational opportunities and enjoyment.¹⁴ Thus assessing these motivations in context with the results of burnout and empathy may prove helpful.

Finally, it has been postulated that just escaping the problems and grind of the typical work or study environment helps in the reduction of burnout.^{6,7} Thus it would be important to have a control group that enjoyed a similarly timed break that was not a GHOE. What the non-GHOE activity was would also be important.

Methods:

A deidentified survey consisting of a consent form, demographics, potential motivators, and alternative activities was created and paired with the Toronto Empathy Questionnaire (TEQ) and the Copenhagen Burnout Inventory-Student Survey (CBI-SS). Both of these evaluation tools have been validated and we used only the 9 essential questions of the CBI-SS based on the Campos, et al. study.¹⁵⁻¹⁹

All 41 osteopathic medical students (OMS) attending one of 2 GHOE's occurring over Spring Break of their 1st or 2nd year of medical education were invited to participate in the survey. A control group of 252 randomly selected classmates that were not participating in the trips (but still going on Spring Break) was created using a random number generator. Group numbers were proportionally matched between 1st and 2nd year students as well as which campus location they attend (Colorado or Utah).

Both groups of students were given the survey of 38 questions on the weeks of February 25, March 21, and May 23: 1 week before the break/trip, 1 week after, and 10 weeks after. To reduce attrition rates, survey participants who completed all 3 surveys were allowed to enter into a drawing for one of four Amazon gift cards of \$25 each by clicking a link on the final survey where they were able to enter their name in a way that would not connect it with the data of the survey. The 3 surveys were able to be linked by the students creating a consistent unique code that they entered on each survey (see below survey for details).

Survey Questions

Demographic/Background

1. Informed consent (I have read the information provided and I consent to participate in the study)
2. Are you in good academic standing? (mark yes or no)
3. Create a “codename” by entering the first 2 letters of your mother’s maiden name followed by the day of month of your mother’s birthday. Example Scott, April 13 Codename: SC13. If unknown, please pick a memorable four digit pin. This allows us to analyze your responses while keeping identifying information anonymous.
4. Year in medical school (class of 2024, class of 2025)
5. Campus (CO, UT)
6. Gender (male, female, transgender, non-binary, other)
7. Age
8. Do you consider yourself religious? (mark yes or no)
9. How many hours do you spend a week doing leisure activity? (0-5,6-10,11-15,15+)
10. Are you planning to attend an RVU Spring Break Global Trip in 2022? (mark yes or no) \
11. (Motivators/Activities)

- a. If Applicable (for students attending the trip): What was your primary motivation for applying/attending RVU Spring Break Global Trip?

Rank from 1-4, 1 being most important, your response is anonymous

- Global Travel Experience
- Improve Curriculum Vitae (CV)
- Make personal connections
- Clinical experience

- b. If Applicable (for students not attending the trip): What are you planning, or what did you do on your 2022 spring break?

Pick one

- studying
- clinical experience
- service
- rest/relaxation
- travel

12. Have you been on a global medicine outreach trip before? (mark yes or no)
13. I have a strong purpose that motivates me to study. (Strongly agree, agree, disagree, strongly disagree)

Toronto Empathy Questionnaire

Scoring Never = 0, Rarely = 1, Sometimes = 2, Often = 3, Always = 4

| | Never | Rarely | Sometimes | Often | Always |
|---|-------|--------|-----------|-------|--------|
| 1. When someone else is feeling excited, I tend to get excited too. | | | | | |
| 2. Other people's misfortunes do not disturb me a great deal. | | | | | |
| 3. It upsets me to see someone being treated disrespectfully. | | | | | |
| 4. I remain unaffected when someone close to me is happy | | | | | |
| 5. I enjoy making other people feel better. | | | | | |
| 6. I have tender, concerned feelings for people less fortunate than me. | | | | | |
| 7. When a friend starts to talk about his\her problems, I try to steer the conversation towards something else. | | | | | |
| 8. I can tell when others are sad even when they do not say anything. | | | | | |
| 9. I find that I am "in tune" with other people's moods. | | | | | |
| 10. I do not feel sympathy for people who cause their own serious illnesses. | | | | | |
| 11. I become irritated when someone cries. | | | | | |
| 12. I am not really interested in how other people feel. | | | | | |
| 13. I get a strong urge to help when I see someone who is upset. | | | | | |
| 14. When I see someone being treated unfairly, I do not feel very much pity for them. | | | | | |
| 15. I find it silly for people to cry out of happiness. | | | | | |
| 16. When I see someone being taken advantage of, I feel kind of protective towards him\her. | | | | | |

Copenhagen Burnout inventory (questions 1, 2, 3, 4, 7, 8, 13, 21, 24)

1 Never, 2 Rarely, 3 Sometimes, 4 Frequently, 5 Always

1. How often do you feel tired?
2. How often are you physically exhausted?
3. How often are you emotionally exhausted?
4. How often do you think: "I can't take it anymore?"
7. Do you feel worn out at the end of the school day?
8. Are you exhausted in the morning at the thought of another day at school or studying?
13. Do you feel burn out because of your studies?
21. Does it drain your energy to work with teachers and peers?
24. Are you tired of working with teachers and peers?

Results:

Of the 41 GHOE participants, 22 chose to participate in the 1st survey, and out of the 252 non-trip participants randomly selected, 70 students participated. Attrition rate was relatively low with trip participant numbers dropping only to 20 and 19 for surveys 2 and 3 respectively, and non-trip participants dropping to 66 and 50 for the final 2 surveys.

Total scores were calculated for the TEQ and CBI-SS for each of the 3 surveys given and separated initially by trip participants (TP) and non-trip participants (NTP).

Initial survey results indicate slightly lower burnout scores for TPs (29.41 vs 30.5) and lower empathy scores for TPs vs NTPs (18.45 vs 20.03). On the 1 week post-break survey, TPs lowered their burnout scores further than NTPs (27.35 [-2.06] vs 30.36 [-0.14]) and empathy scores stayed stable for TPs (18.4 [-0.05]) while they dropped substantially for NTPs bringing them below the TP levels (17.92 [-2.11]). On the final 10-week post-break survey, burnout rose to above pre-break levels for NTPs (31.76 [+1.35]) while it further lowered in the TPs (27.26 [-2.15]), and empathy scores raised in both groups but more so in the TPs (19.37 [+0.92] vs 18.4 [-1.63]).*

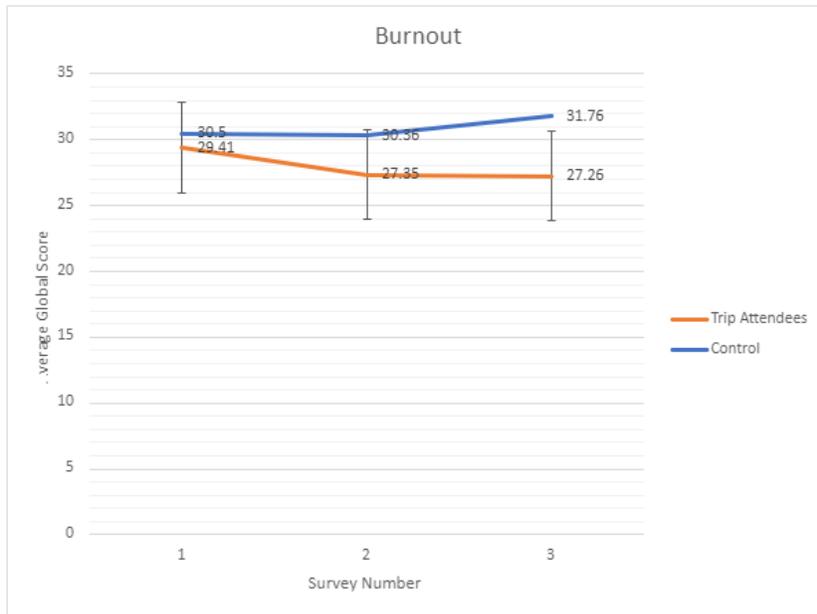
*[values] are differences from baseline scores

| Burnout Survey # | TP Average Sum | Standard Deviation | Variance | Count |
|------------------|------------------|--------------------|----------|-------|
| 1 | 29.41 | 3.96 | 15.7 | 22 |
| 2 | 27.35 | 4.04 | 16.33 | 20 |
| 3 | 27.26 | 3.43 | 11.77 | 19 |
| | | | | |
| Empathy Survey # | TP Average Score | Standard Deviation | Variance | Count |
| 1 | 18.45 | 5.19 | 26.98 | 22 |
| 2 | 18.4 | 6.11 | 37.34 | 20 |
| 3 | 19.37 | 5.68 | 32.23 | 19 |

TP = Trip Participants

| Burnout Survey # | NTP Average | Standard Deviation | Variance | Count |
|------------------|-------------|--------------------|----------|-------|
| 1 | 30.5 | 6.04 | 36.51 | 70 |
| 2 | 30.36 | 6.94 | 48.2 | 66 |
| 3 | 31.76 | 6.65 | 44.26 | 50 |
| | | | | |
| Empathy Survey # | NTP Average | Standard Deviation | Variance | Count |
| 1 | 20.03 | 6.2 | 38.48 | 70 |
| 2 | 17.92 | 5.39 | 29.01 | 66 |
| 3 | 18.4 | 6.37 | 40.56 | 50 |

NTP = Non-Trip Participants



Discussion

These preliminary results show a positive trend in both burnout scores and empathy scores for GHOE participants versus non-participants. It is important to note that the medical school environment is dynamic and changing. Some weeks and course blocks are more difficult than others and thus symptoms and levels of both burnout and empathy may naturally vary depending on the time frame. This is one of the primary reasons why we chose as a control to include NTPs who are going to through the same courses and blocks as the intervention group. Thus, while the difficulty of the course currently

running when the survey was taken may influence the levels of burnout and empathy, the comparison of the two groups tells the real story.

Regarding burnout, in our results we show that while NTPs burnout scores started slightly higher than the TPs scores, a week-long break did not improve those scores, and 10 weeks post-break their burnout scores increased. Meanwhile, TPs lowered their score post-trip and 10 weeks later their burnout scores lowered even further. This is a promising result that GHOE may be more protective and even combative against burnout in medical students compared to just a vacation week.

In regard to empathy, it is interesting that the empathy scores of trip participants started lower than NTPs. There are many possible factors that could account for this: increased stress of planning and preparing for an international trip; anxiety or worries about the trip; etc. It is also possible that NTPs, anticipating a nice week-long break, could be a little less stressed. This is an area for potential further study. However, the finding that empathy scores stayed stable for TPs and then increased further 10 weeks post-trip, while the NTPs scores dropped drastically immediately post-break and only partially recovered 10 weeks later, suggests a potential protective effect against empathy decay in medical students. It is possible that, NTPs returning to the grind of medical school from a week of relaxation struggled to readapt, while TPs were better able to manage that transition due to the insights and benefits gained from the GHOE.

With these findings, medical schools should consider looking at ways to increase student involvement in GHOE as one tool to help with burnout and empathy decay. Participation in these GHOE still needs to be ethical and culturally appropriate. This means these short-term experiences need to be nested within long-term sustainable programs and expectations, support, and training need to be both adequate and appropriate.⁶ Costs, timing, and access to these experiences are common barriers to participation for medical students.^{12,14} It has also been found that participants on trips tend to be unmarried and childless,¹³ which could be an indicator of the cost and timing barriers of these trips. Finding ways to address these barriers could allow more students to benefit from these experiences.

More detailed analysis is needed still to make stronger conclusions. This includes looking at significance of the findings, and looking into the subgroups which include demographics, motivators, and activities. We may find that certain subgroups benefit more than others, and that certain non-trip activities are more protective than others.

Conclusion

Preliminary findings show a trend for protection from both burnout and empathy decay in preclinical medical students participating in global health outreach experiences compared to medical students who had a standard week-long break. Further analysis is needed to see if this trend is significant, and if it stronger in any particular subgroup. There is a need for additional research in other years of medical education as well as throughout the healthcare career in various specialties to identify which groups and subgroups may benefit most from GHOE. We also call for universities and other organizations to look at and find ways to address the various barriers that exist which impede students from participation in these experiences that may well prove to protect from and combat the burnout and empathy decay that is so prevalent in the health care profession.

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