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Relationships Between Medical Student Burnout, Empathy, and Professionalism Climate

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Abstract

Background

Medical student burnout is prevalent, and there has been much discussion about burnout and professionalism in medical education and the clinical learning environment. Yet, few studies have attempted to explore relationships between those issues using validated instruments.

Method

Medical students were surveyed at the beginning of their fourth year using the

Maslach Burnout Inventory, the Jefferson Scale of Physician Empathy–Student Version, and the Professionalism Climate Instrument. The data were analyzed using Statistical Package for the Social Sciences, and Spearman correlation analysis was performed.

Results

Scores indicative of higher medical student burnout were associated with lower medical student empathy scores and with lower professionalism climate

scores observed in medical students, residents, and faculty.

Conclusions

Investigators observed relationships between medical student burnout, empathy, and professionalism climate. These findings may have implications for the design of curriculum interventions to promote student well-being and professionalism.

Burnout is a work-related syndrome characterized by emotional exhaustion, cynicism and depersonalization, and reductions in personal accomplishment and effectiveness.¹ It is prevalent in medical school, with as many as 50% of medical students assessed with significant burnout in a large, multicenter study.²

There has been much discussion about medical student stress and burnout along with numerous reports of reductions of empathy,^{3,4} compassion, and humanitarian attitudes⁵ during medical school—believed, in part, to be students' responses to stressors within the learning environment.^{4,6} Recent studies have linked personal life events, curriculum, and learning environment factors to medical student burnout^{7,8} including perceived level of support and clerkship organization.⁷ At the same time, there has been increased attention to teaching students about professionalism⁹ and concerns about

poor role modeling of professionalism in the clinical learning environment as part of the *hidden curriculum*.^{10,11} Yet, few studies have attempted to evaluate the relationship between burnout and professionalism in the learning environment using validated instruments. One study reported an inverse relationship between burnout as measured by the Maslach Burnout Inventory (MBI) and medical student empathy using the Interpersonal Reactivity Index (IRI). The IRI is a measure of empathy not specific to medical settings, and only some of the IRI subscales correlate with the Jefferson Scale of Physician Empathy–Student Version (JSPE-S).^{12,13} Another study found an association between medical student burnout measured by the MBI and being taught by residents reported to be cynical.⁷ Yet another study that used the MBI linked burnout in residents with self-reported suboptimal patient-care practices including suboptimal treatment of patients from a humanitarian standpoint.¹⁴

The paucity of studies that use validated instruments is likely related to the complexities involved in defining and measuring professionalism. Many definitions of professionalism exist. The American Board of Internal

Medicine states that professionalism “entails altruism, accountability, commitment to excellence, duty and commitment to service, honor and respect for others.”¹⁵ Cruess et al¹⁶ emphasize the social contract aspect of professionalism, and Stern¹⁷ states that it is “demonstrated through a foundation of clinical competence, communication skills and ethical and legal understanding on which is built ... excellence, humanism, accountability, and altruism.” Empathy is included in this conceptualization. Accordingly, there is no single instrument to measure professionalism. A multifaceted approach is recommended, depending on which component is being measured: for instance, knowledge-based exams for ethics, attitude surveys for empathy, 360-degree evaluations by peers and other health professionals to assess behavior,¹⁷ portfolios of professional development⁹ or service activities,¹⁸ or surveys on the climate of professionalism in an institution.¹⁹

To our knowledge, there are no studies that have evaluated the relationship between medical student burnout and empathy using a measure of empathy that is specific to health care settings, or that have evaluated the relationship between

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Table 1

Mean Scores for Maslach Burnout Inventory (MBI) Subscales, Jefferson Scale of Physician Empathy–Student Version (JSPE-S), and Professionalism Climate Instrument (PCI) for the Rising Fourth-Year Class of 2010

Instrument	Participants, no.*	Possible scores and categories	Study range	Score, mean (SD)
MBI				
Emotional exhaustion subscale	125	<ul style="list-style-type: none"> • 0–16 (low) • 17–26 (moderate) • ≥27 (high) 	0–51	24.26 (10.92)
Depersonalization subscale	124	<ul style="list-style-type: none"> • 0–6 (low) • 7–12 (moderate) • ≥13 (high) 	0–27	10.18 (6.51)
Personal accomplishment subscale	124	<ul style="list-style-type: none"> • ≥39 (low) • 32–38 (moderate) • 0–31 (high) 	13–48	36.11 (7.46)
JSPE-S[†]	126	20–140	67–138	113.31 (13.35)
PCI[†]				
Medical students	105	12–48	17–44	33.98 (5.19)
Residents	103	12–48	17–45	33.54 (5.78)
Faculty	98	12–48	20–48	34.04 (5.66)

* Some students (partial completers) did not completely fill out all parts of the questionnaires, which accounts for different N values. Similar results were observed for the full completers (n = 91) compared with the total sample of participating students.

† The developers of this instrument have not yet established cutoffs for it.

medical student burnout and professionalism climate in the learning environment using validated instruments. We developed such a study and hypothesized that scores indicative of higher medical student burnout would be associated with lower medical student empathy scores and with lower professionalism climate scores observed in medical students, residents, and faculty.

Method

Students from the class of 2010 at one institution were surveyed at the beginning of their fourth year during student group activities. They were asked to complete the MBI,¹ the JSPE-S,²⁰ and the Professionalism Climate Instrument (PCI).¹⁹ With IRB approval, the surveys were administered confidentially; completion was voluntary.

The MBI has been used and validated in health care settings and with medical students.^{8,12,21–23} It includes 22 statements of work-related feelings. Respondents rate how frequently they

experience these feelings on a scale of 0 (never) to 6 (every day). The MBI includes three subscales which are reported separately: emotional exhaustion (MBI-EE), depersonalization (MBI-DP), and personal accomplishment (MBI-PA). Higher scores on the MBI-EE and MBI-DP subscales and lower scores on the MBI-PA subscale indicate more burnout.

The JSPE-S's validity has been well established.^{4,13} Respondents must indicate how strongly they agree, on a scale of 1 to 7, with each of 20 statements related to empathy in patient-care settings. Higher scores on the JSPE-S indicate more empathy. The JSPE-S also collects information about specialty selection.

The PCI was recently developed and validated to fill a void in the measurement of professionalism in clinical care settings.¹⁹ It includes 12 statements about behaviors related to professionalism that can be observed in the clinical learning environment. Students rank on a four-point scale

(mostly = 4, rarely = 1) how frequently they observe each behavior in each of the following groups: medical students, residents, and attending physicians, for a total of 36 items. Higher scores on the PCI indicate more desirable professional behaviors in a given group.

The data from all instruments were analyzed using Statistical Package for the Social Sciences. Spearman correlation analysis was performed between the MBI, JSPE-S, and PCI scores.

Results

The overall response rate was 71.8% (127/177). One student refused participation; two students responded but did not complete the consent form appropriately. The rest (47) were not present at student activities and no information was collected about them. Forty-eight percent of participants were women, comparable with 46.3% (82/177) women for the class as a whole.

Mean scores for each instrument are indicated in Table 1. Correlations are presented in Table 2. The MBI-EE and MBI-DP subscales each correlated negatively with empathy scores and with PCI scores for medical students, residents, and faculty. The MBI-PA subscale scores correlated positively with empathy (JSPE-S) scores and with professionalism climate (PCI) scores for medical students, residents, and faculty.

There was a significant positive correlation between medical student empathy scores and PCI scores for students, and the correlation between medical student empathy scores and PCI scores for residents and faculty approached statistical significance ($P = .101$, $P = .067$).

The MBI-EE and MBI-DP subscales correlated negatively with the MBI-PA subscale, and the PCI for medical students, residents, and faculty groups positively correlated with each other.

Of the 127 students, 90 completed all questionnaires fully. Full and partial completers did not differ by gender and specialty choice. Similar results (i.e., means and correlations) were observed among full completers as compared with those shown in Table 2 for the total study sample.

Table 2

Correlations Between the Maslach Burnout Inventory (MBI) Subscales, the Jefferson Scale of Physician Empathy–Student Version (JSPE-S), and the Professionalism Climate Instrument (PCI)*

Instrument and tests	MBI			JSPE-S	PCI		
	EE	DP	PA		Medical students	Residents	Faculty
MBI							
EE							
Spearman	1.0						
<i>P</i>							
<i>N</i>	125						
DP							
Spearman	0.742 [†]	1.0					
<i>P</i>	<.001						
<i>N</i>	123	124					
PA							
Spearman	−0.479 [†]	−0.551 [†]	1.0				
<i>P</i>	<.001	<.001					
<i>N</i>	123	122	124				
JSPE-S							
Spearman	−0.299 [†]	−0.411 [†]	0.439 [†]	1.0			
<i>P</i>	.001	<.001	<.001				
<i>N</i>	124	123	123	126			
PCI							
Medical students							
Spearman	−0.463 [†]	−0.442 [†]	0.398 [†]	0.303 [†]	1.0		
<i>P</i>	<.001	<.001	<.001	.002			
<i>N</i>	103	102	102	104	105		
Residents							
Spearman	−0.513 [†]	−0.471 [†]	0.299 [†]	0.163	0.798 [†]	1.0	
<i>P</i>	<.001	<.001	.003	.101	<.001		
<i>N</i>	101	100	100	102	101	103	
Faculty							
Spearman	−0.519 [†]	−0.492 [†]	0.320 [†]	0.187	0.561 [†]	0.687 [†]	1.0
<i>P</i>	<.001	<.001	.001	.067	<.001	<.001	
<i>N</i>	96	95	97	97	96	96	98

* EE indicates emotional exhaustion subscale; DP, depersonalization subscale; PA, personal accomplishment subscale.

[†] Correlation is significant at $P < .01$ (two tailed).

Discussion

To our knowledge this is the first study that used validated instruments to evaluate the relationship between burnout and professionalism climate. Our scores for each individual instrument are close (within 10% or less) to scores reported in the literature for medical students.^{2,4,19}

Our results, that scores indicative of higher burnout are associated with lower empathy scores, are similar to a previously reported study that used the IRI as a measure of empathy.¹² Scores

indicative of higher burnout showed a significant negative correlation with the professionalism climate scores. Although immediate cause–effect relationships are difficult to attribute, this strong negative correlation could indicate that burnout leads to less desirable professional behaviors or that less professional learning environments may contribute to medical student burnout. It could also be that students who are burned out have a more negative view and are more likely to think poorly of the professionalism of their fellow students, residents, and

faculty within the learning environment; this perception can also have a negative impact on what students learn.

It is interesting that empathy scores in students correlated positively with the professionalism that students observed in their peers and that the same correlation approached significance for residents and faculty: It could be that empathic students positively influence other members of the health care team or that more empathic students rate other members of the health care team

higher. More studies are needed to assess this. Such studies could include administering the three surveys simultaneously to students, residents, and faculty members of a clinical care team and could follow this with a focus group to discuss the impact of empathy in one team member on the team as a whole. We noted also that there were fewer questionnaire entries for the PCI sections on residents and faculty, thereby reducing our N values for these groups. This may explain why the correlation between medical student empathy scores and the PCI residents and faculty did not reach significance. It may be more difficult for students to evaluate residents and faculty, especially if the evaluation is negative. The confidential, not anonymous nature of our study could have contributed to this finding.

The MBI-PA subscale correlated negatively with the MBI-EE and MBI-DP subscales, as expected from the MBI validation studies.¹ The PCI medical students, residents and faculty groups positively correlated with each other which was also expected based on the psychometrics reported for this instrument.¹⁹

This study was done at a single institution, which limits generalizability. We do not know how students who were absent differ from students who were present at student activities. Although the PCI is a new instrument that has not been widely used, it was selected as the best available because of its user-friendly format and pertinent questions.

Scores indicative of higher medical student burnout as measured by the MBI were linked with lower medical student empathy scores as measured by the JSPE-S and with lower PCI scores in

medical students, residents, and faculty within the learning environment. Knowledge of these relationships may assist medical school faculty in planning curriculum interventions to affect student well-being and professionalism.

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